Red Streak

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8 Bd

Vinetum Britannicum:
OR A
TREATISE
OF
CIDER,

And other Wines and Drinks extracted from Fruits Growing in this Kingdom.

With the Method of Propagating all sorts of Vinous FRUIT-TREES.

And a Description of the New-Invented INGENIO or MILL, For the more expeditious making of *CIDER*.

And also the right way of making METHEGLIN and BIRCH-WINE.

The Third Impression, much Enlarged.

To which is added, A Discourse teaching the best way of Improving BEES.

With Copper Plates.

By *J. Worlidge.* Gent.

LONDON,
Printed for *Thomas Dring*, over against the Inner-Temple-gate in *Fleet-street*. 1691.

a. 3334

MVSEVM
BRITAN
NICVM

3 Dd

To

ELIAS ASHMOLE Eſquire,

Fellow of the Royal-Society.

SIR,

THe many Favours I have received from you, make me thus confident to preſent you with a ſmall piece of Ruſticity; It is too meanly pend to deſerve your Patronage, who have a greater and more venerable eſteem for more ſublime Subjects. Yet this of Wine being that which incites ſome to ſpeak too much, will, I hope, beg my excuſe, and ſpeak for it ſelf; It being one of the beſt and moſt advantageous pieces of improvement of our Country Farms yet known, if duly proſecuted, not much inferior to that moſt excellent deſign of planting Timber, unto which this muſt

yield

yield the precedency, in reſpect of the publick and univerſal Benefit the other produces; It being inſtrumental in ſecuring us whilſt we plant our Vineyards and eat and drink the Fruit of them. I wiſh this of improving our home-made Drinks may receive no check from my rough handling it. Which might have been more acceptable to you, and would have more eaſily inſinuated it ſelf into the Apprehenſions of moſt men; had it been written with a ſmoother Pen: But ſo Rural a Diſcourſe, I hope, may paſs under a plain dreſs, from

Sir,

Your very humble Servant.

John Worlidge.

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To

To the

READER.

SInce the first Edition of this Tract, many have attempted the encreaſe of Honey, according to the late divulged Method of keeping *Bees* in Colonies, pretended to be newly invented. And by reaſon that Honey is a uſeful and profitable ſubject wherewith to make very excellent Liquors, I have ſubjoyned a ſmall Treatiſe of the beſt way of managing thoſe curious Inſects, as a very neceſſary Supplement to this preſent deſign; and partly to prevent the too precipitate expence of Labour, Time and Charges, in ſo needleſs and fruitleſs an Exerciſe, as the Propagators of that Invention would wheedle the credulous into. And had not they had a particular reſpect to their own gain,

they would not have taken ſo much pains to have made it popular for a publick advantage: Although the Effects had anſwered their Pretences.

I have alſo in this ſecond Edition added ſeveral material Improvements to this part of Agriculture, and ſeveral late Experiments made to the great improvement of *Cider*. And alſo the true way of making the *Ingenio* for the Grinding of *Apples* according to the various Experiments of ſeveral Artiſts, that have contributed to the perfecting ſo uſeful a *Machine*. With Propoſals and Eſſays for the beſt way of making *Preſſes* after divers manners, for the more eaſie forcing the Liquor from the Murc. And not without Additions to moſt of the principal Matters treated of in the former Edition.

J. W.

THE

THE PREFACE.

THe *principal deſign of the enſuing Treatiſe, is the improvement and increaſe of the moſt excellent Liquor this Iſle of* Great Britain *affords; which hath of late years been brought into uſe, and very much admired by moſt, through the means and induſtry of many worthy Perſons, who have very much added to its Reputation. Yet is it not become ſo general a Drink as probably it may be in time, becauſe the greater part of the people of* England *are not as yet convinced of the advantage that will ariſe by the propagation of the Trees that yield this noble Drink, nor acquainted with the right method of planting them: neither do they underſtand the true and genuine way of extracting or preparing it. Which hath been the occaſion that many have exclaim'd againſt it for a mean dull Drink.*

Thus hath this Liquor been undervalued by the ignorant, which did prevent a long time many from undertaking it's improvement. The Planters alſo have been diſcourag'd either by

the difficulty of raiſing the Trees, as ſuppoſing them not to agree well with the Soil; or in preſerving them, when raiſed, from Cattel, and other injuries; and the fruit from ſuch caſualties they are uſually ſubject unto: many alſo being not as yet convinc'd of the ſalubrity and pleaſantneſs of the Drink it ſelf. Therefore is this ſmall Tract adventuring into the World in a plain and homely dreſs, to endeavour a Conviction of the Country-man, not only of the feaſibleneſs of the Raiſing, Propagating, and Planting of Apple-trees, *or other Fruit-trees in moſt Places or Soils in this Iſland, and that to a conſiderable improvement and advantage of their Farms or Livings ſmall and great; but alſo of the Times and Seaſons of gathering the Fruits, and the true and right method of Grinding, Preſſing, or Extracting their Juices, and fermenting, preparing, and preſerving the ſame when extracted, after the moſt genuine and beſt experimented ways that have been yet known, diſcovered, or made uſe of. For this Liquor* Cider *hath been improved even to perfection, as many ingenious and worthy perſons can teſtifie; and the Method thereof may in time become practicable by the moſt vulgar Capacities, from whom is expected the more Univerſal advancements of this deſign; into whom it is not eaſie to infuſe any thing that is*

Novel,

Novel, although it be ne'er ſo feaſible, or to be deſir'd; as might be inſtanced in ſeveral Points of Agriculture, *that by degrees have been introduc'd, and now become generally practiced, which by them were once ſlighted and deſpiſed: there being no argument ſo prevalent with them as Profit; nor that to be talked of, unleſs demonſtrated by plain Experience, which in this Tract I hope will be done to their ſatisfaction. However, they need no better Argument to convince them of the Profits that ariſe from this part of Husbandry, than that many Places in* Herefordſhire, Glouceſterſhire, Worceſterſhire, *&c. are highly improved by this very Method; the* Cider *there made being in great quantities annually carried to* London, *and ſeveral other places of this Kingdom, and ſold at a very high rate; and valued above the Wines of* France, *partly from the excellency of it in it ſelf, and partly from the alteration, for the worſe that French Wines ſuffer by their exportation, and from the ſophiſtications and adulterations they receive from thoſe that trade in them; which by the ill effects of the latter, oppoſed to the virtues and pre-excellency of the former, in all probability, will ſo far encreaſe and promote the Reputation of* Cider, *that it will not only continue the price and value of it, but rather enhanſe it, as the Planters and Ci-*

deriſts grow more expert in planting the beſt Fruits, and preparing the Liquors after the beſt methods. For vain and frivolouſs is the Objection that is uſually made, That by much planting of theſe Fruits, the prices of them will be ſo low, that they will not quit the coſt. The ſame objections might have been made in Herefordſhire, *and places adjacent, where theſe Trees in late years are wonderfully increaſed; yet in the ſame places, the Fruit as well as the Cider yields a greater price now than ever it did formerly, or than it doth in any place of* England (*diſtant from* London) *beſides: For within theſe three years* Redſtreak-Apples *have, in ſome part of that County, been ſold after the rate of Five and ſometimes Eight ſhillings the Buſhel, and the* Cider *made of that Fruit been ſold for eight pounds the Hogſhead, and if two or three years old, then for twenty pounds the Hogſhead, the price of the beſt Canary. The ſame may be expected in other places, if Husbandmen would take care to plant the beſt Fruits,* &c. *it being preſumed that* Cider *in a little time would wear out the Reputation of French Wines, and by degrees leſſen the expence of Malt; it being much to be preferr'd to the former, and found by experience to be more wholſom than the Drink made of the latter; and may in time be made at an caſier rate than Ale or Beer, and yet*

be

be a great improvement, conſidering that an Acre of Land planted with Apple-trees, will by its Fruit yield more Liquor than two or three Acres of Barly can make; and that without the annual charge of Plowing, Sowing, &c.

But the main Objection that may be made by the more ſober part of this Nation, is, That the increaſe of theſe intoxicating and inebriating Liquors, is an encouragement to the univerſal vice of Drunkenneſs. To which it may be anſwered, That that vice is not now ſo regnant in this Iſle, as it hath been in former Ages, and now is in other European *Nations, if Hiſtory may be credited. As in* Virgil's *time, Drinking and Quaffing to their God* Bacchus *was in uſe; that Art being then much in requeſt, and the Goat made a Sacrifice to that God, for cropping the tender Sprigs of the* Vine *that yielded their beloved Liquor.*

Non aliam ob culpam Baccho Caper omnibus aris
Cæditur, &c.

Only for this Crime we on Altars pay
Bacchus a Goat, and act the antient Play.
Then from great Villages *Athenians* haſte,
And where the High-ways meet, the Price is plac'd.

They to ſoft Meads, heightned with Wine, advance,
And joyfully 'mongſt oyled Bottles dance
Th' *Auſonian* Race; and thoſe from *Troy* did ſpring,
Diſſolv'd with laughter, ruſtick Verſes ſing;
In Vizards of rough Bark conceal their face,
And with glad Numbers thee great *Bacchus* grace.

And after him, Pliny *reports that Drunkenneſs and Debauchery were the principal ſtudies of thoſe times and Countries; they then inventing all ways imaginable to excite the Appetite, as if they had been born into the world to no other end but to waſte good Wine; giving great rewards to the greateſt Drinkers. He tells us the* Parthians *then contended for the glory of exceſſive Wine-drinking; but the* Italians *were unwilling to part with that honour.* Milain *yielding one* Novellius Torquatus, *that won the name from all pretenders at that time, who had gone through all honourable degrees of Dignity in* Rome, *wherein the greateſt Repute he obtained, was for drinking in the preſence of* Tiberius *three Gallons of Wine at one draught, and before he drew his breath again: Neither did he reſt there, but he ſo far had acquired the Art of Drinking, that although*

though he continued at it, yet was never known to faulter in his Tongue; and were it ne'er ſo late in the Evening he followed this Exerciſe, yet would he be ready again for it in the morning. Thoſe large Draughts alſo he drank at one breath, without leaving in the Cup ſo much as would daſh againſt the Pavement. The Weſtern *parts of the World, and namely* France *and* Spain, *were by* Pliny *cenſured for their Drunkenneſs with Beer and Ale, Wines being not there in that Age ſo frequent. For* Italy *exceeded all parts of the world for its curious Wines, there being reckoned* 195 *ſorts of Wines.* Virgil *counted them innumerable.*

Sed neque quam multæ Species, nec nomina (quæ ſint.
Eſt Numerus.——

Their Names and Kinds innumerable are,
Nor for their Catalogue we need not care;
Which who would know, as ſoon may count the Sands
The *Weſtern* Winds raiſe on the *Libyan* Strands.

But at this day no Country yieldeth more variety, nor more pleaſant Wines than Italy. *In* Rome *are now drank (ſaith an Hiſtorian of their own)* 28 *diſtinct ſorts of excellent Wines; and,*

and, as is reported, their Lachrymæ Chriſti *exceedeth, for its pleaſant and exhilarating quality. So at this day the* Germans *are much given to drunkenneſs, as one of their own Countrymen writes of them; that they drink ſo immodeſtly and immoderately at their Banquets, that they cannot pour it in faſt enough with the ordinary Quaffing Cups, but drink in large Tankards, whole draughts, none to be left under ſevere Penalties; admiring him that will drink moſt, and hating him that will not pledg them. The* Dutch-men *are not behind-hand with them; inviting all Comers with a Pail and a Diſh, making Barrels of their Bellies. In* Poland, *he is moſt accounted of that will drink moſt Healths; and held to be the braveſt Fellow, that carries his Liquor beſt; being of opinion, that there is as much Valour to be found in drinking as in fighting. The* Ruſſians, Swedes, Danes, *and thoſe* Northern *Inhabitants, exceed all the reſt, having made the drinking of* Brandy, Aqua Vitæ, Hydromel, Beer, Mum, Meth, *and other Liquors in great quantities, ſo familiar to them, that they uſually drink our Countrymen to death: Prieſts and People, Men and Women, Old and Young, do ſo delight in drunkenneſs, that they are daily early and late found wallowing in the Streets. So that comparing other Nations and Ages with this of ours,*

we

we may well conclude, that the Inhabitants as well as the Air of Great Britain *are temperate, not too prone to thoſe Vices other places are ſubject unto; and may juſtly give them the Character that was given to the* Perſians, *That* Temperance *is their chiefeſt Virtue: yet not to be abſolutely excuſed; for in the beſt Gardens ſome Weeds grow, and amongſt the moſt civil, ſome rude and debauch'd are to be found. There is ſcarce any part of the world, but ſome of its Inhabitants are addicted to the drinking of intoxicating Liquors, which Nature hath prompted them unto, thereby to ſuffocate the thoughts of futurity, proper only to Mankind. The very* Africans, Americans, *and* Indians *delighted in them, although they were not very exquiſite in their preparation; but moſt of the* Americans *inſtead of Liquors uſed the fume of a Plant, that produced the ſame effect; whom we think no diſhonour to imitate, even to exceſs, and it's probable out-do them in their own Invention, not eſteeming it a Vice. The* Mahometans, *which poſſeſs a great part of the world (it's true) on a ſuperſtitious account forbear the drinking of much Wine; becauſe that a young and beautiful Woman being accoſted by two Angels (that had intoxicated themſelves with it) taking the advantage of their Ebriety, made her eſcape, and was for her Beauty and Wit prefer'd in Heaven,*

Heaven, and the Angels ſeverely puniſhed for their folly: For which reaſon, they are commanded not to drink Wine. Yet many of them doubting of the Divinity of that Relation, do tranſgreſs that Command, and liberally drink of the Blood of the Grape, which the Chriſtians prepare out of their own Vineyards, palliating their Crime, in that they did not plant the Tree, nor make the Wine: The reſt of them for the moſt part taking great quantities of Opium, *which hath a ſtupifying quality with it; and this generally when they are to look Death in the face. The* Chineſes, *and the other Inhabitants of the* Eaſtern *parts of* Aſia, *are the leaſt addicted to Ebriety, delighting themſelves with* Coffee, Tea, *and ſuch like Drinks, free from thoſe ſtupifying qualities: yet are they not without their Carouſes; and thoſe of the intoxicating Drinks, prepared of* Rice, Coco's, Sugar, Dates, *&c. equalling in Strength and Spirit any Liquors in the World. Therefore may we very well excuſe our own Nation in the ſlender exerciſe of this Vice, were they ſatisfied with our own pleaſant and ſalubrious Drinks, and did not ſpend their Healths, Lives, and Eſtates, as ſome are apt to do, on ſuch that are forreign and pernicious.*

And it is to be hoped, that if the Gentry *of* England, *which are for the moſt part Land-*

lords

lords of many fruitful Villa's, *will but ſet their own hands to the Spade, and encourage their Tenants therein, which now delight more in the Plow; in a little time, the plenty and excellency of our own, may extirpate the name of forreign Drinks. This being one of the moſt principal and univerſal points of Husbandry;* Bread *and* Drink *being the chief ſupports of mans life: And this being of all parts of* Agriculture *the moſt pleaſant; the Plow carrying with it, many times, more care, coſt, and hazard, and not affording the tenth of that pleaſure, as this Art of Planting doth; it giving you one of the nobleſt Oblectations the world affords; and hath by its infinity of delight, ſubjected unto it the Spirits of* Emperours, Princes *and* Senators.

While Fortune waited on the *Perſian* State, *Tranſlat.*
Cyrus who from *Aſtyages* the Great *Rapinus.*
Himſelf deriv'd, himſelf his Gardens till'd.
How oft aſtoniſh'd *Tmolus* has beheld
Th'induſtrious *Prince* in planting Trees and Flow'rs,
And watring them imploy his Vacant hours, *&c.*

Many more Examples might be here enumerated; but I hope the more Ingenious part of Engliſh men will be eaſily convinc'd of the pleaſure

ſure of this Exerciſe, and of the advantage that it will bring to them and the Nation in general. It may be alſo objected, that the uſe of Cider *being now common, and the planting of Fruit-trees become univerſal in this Iſle, and* Cider *made almoſt in every Village, and many Tracts already written, that contain in them the moſt excellent Precepts, Rules, Obſervations, and Experiments that can be imagined, for the propagating of the Trees, and making this Liquor, That this ſucceeding Tract may be needleſs. To which I anſwer, that although in ſome part it may ſeem to be true what is here objected, yet is not the uſe of* Cider *fully known, nor the planting of Trees ſo much encreaſed, as to amount unto a twentieth part of what in probability it may be in a few years; neither doth one in ten of ſubſtantial Houſekeepers in the greateſt part of the Nation make, or ſcarce know how to make this Drink. And as for the Books that treat of this Subject, they are but few; and what is mentioned in them of it, is but here and there a little. The moſt, and all indeed that is written of it well, is in that incomparable Tract of Mr.* Evelin (*his* Pomona *at the end of his Voluminous* Sylva) *which every one that may be capable of a ſmall* Plantation, *is not willing to purchaſe. The conſideration of all which, did induce me to take upon me the pleaſure of proſecuting*

ſecuting this deſign of publiſhing to the world what I have done and obſerved in. Firſt, The Experimenting the different natures of Trees and Soils, and of making them agree better one with the other, than naturally they would do; whereby ſeveral ſorts of Fruit may be propagated in ſuch places where otherwiſe they could not. Secondly, In the manner of grinding Apples, by a new-invented Engine that doth much facilitate the Labour and Charge formerly expended about it. Thirdly, In the way of fermenting this Liquor, and means of purifying and preſerving it; with ſeveral other Rules, Directions, and Obſervations, more than what are generally known or taken notice of; wherein I have taken as much delight and pains, as the Subject and my Leiſure can afford. And I doubt not but it will yield the Reader content and ſatisfaction, although there may be ſeveral things inſerted that may not ſeem new, but borrow'd; it's ſo in moſt Treatiſes, it being an uſual Saying, That Nil dictum quod non dictum prius, *Every thing hath been diſcourſed of before;* Methodus ſola Artificem oſtendit. *The Method and Manner of performing what hath been diſcourſed of, is here ſhewn: and without an intermixture of the ſame that hath been ſpoken or written of this Subject,*

it's

it's impoſſible to make it compleat. But in that it is ſo accurt and ſuccinct, that without all peradventure it will not ſeem tedious to the Reader to read ſo few Lines, that are but introductory to the End its ſelf for which this Tract was written.

You have not only here preſented to you the Art of Propagating the Apple-tree, *and preparing the Juice of its Fruit; but ſome ſelect Obſervations and Experiments in the Planting and Propagating ſeveral other* Vinous Fruit-bearing Trees, *and extracting, preparing, and preſerving their Juices: And alſo the beſt way of making* Metheglin *out of the Fruit and Labour of the induſtrious* Bees, *and by them extracted and collected from various Plants, or, as many would have it, only from the* Oaken *Leaf. And the extracting and decocting the Sap of the* Birch-tree, *making thereof a cool Summer-*Bonello: *Together with a brief touch at the Compoſition of* Chocolette, Tea, *&c.* And alſo a Corollary of the Names and Natures of moſt Fruits flouriſhing in this Iſle.

CHAP.

CHAP. I.

Of Drinks in General.

AS the Climates and Situations of Countries, and the Humours and Diſpoſitions of the Inhabitants differ; ſo have they their various and different Drinks and Liquors, and their Diets, Habits, *&c.* Which Drinks and Liquors are by them alſo variouſly extracted or prepared, and out of different Subjects or Materials. Therefore, before I begin this Diſcourſe, it will not be amiſs to give the Reader a brief Account of ſuch diverſe Subjects or Materials, out of which they are extracted or prepared; that we may obſerve how induſtrious the Inhabitants of this Globe have been in every part thereof, (as it were by an univerſal conſent) in ſearching into the ſeveral Natures of Plants and Fruits, to exhauſt their Blood and Tinctures, to gratifie their Guſts, and pleaſe their Fancies; that from the moſt remote *American*, to the extreameſt *Aſian*, they ſeem to accord in this, That that Liquor, out of whatſoever ſalubrious Matter extracted, which will moſt intoxicate, is

to be highly eſteemed of; which in every Country in the World, either ſome *Root*, *Plant*, *Fruit*, or *Grain* will yield, if by humane Art it be rightly prepared.

SECT. I.

Drinks made of the Sap of Trees.

The *Palm-wine* is made of the Sap of the *Palm-tree*; which the *Africans* and *Aſians* extract, either by plucking off the Flower, and faſtening a Pot to the end of the Sprig into which the Liquor will diſtil; or by boring a hole in the Tree, and hanging a Pot under the ſame to receive it: which in the *Eaſt-Indies* they call *Sura*, in colour reſembling Whey; and at the firſt drawing is ſweet and pleaſant like Wine. This Liquor boiled they call *Terry*, and will keep ſome time; but if unboiled, ſuddenly turns into very good Vinegar. This Wine intoxicates the Brain, and inebriates as other Liquors do: if diſtilled, it makes Strong-water; if Raiſins of the Sun are infuſed in it, with ſome other the like Ingredients, it meliorateth the ſame exceedingly. Out of one Tree, two Gallons of this Liquor may be drawn in a day, without any damage to the Tree: Yet ſome have report-

ed,

ed, that it hinders the ripening of the Fruit, and that you muſt expect no Fruit from the Tree out of which you thus extract its Blood; which may be ſuppoſed to happen, when too much is drawn, or in too dry or late a Seaſon.

In the *Molucca*'s they extract Wine out of another Tree, there called *Laudan.*

In the *Caribbe Iſlands* is a prickly or thorny *Palm*, out of which is alſo extracted a *Wine*, after the ſame manner as before.

So alſo out of the *Birch-tree* may be extracted a pleaſant Liquor, which being neceſſary and uſeful, and to be obtained in this Climate, the manner of drawing and ordering it you ſhall find in the Sequel of this Diſcourſe.

The Saps of the *Elder*, *Elm*, *Oak*, *&c.* are well eſteemed for their Medicinal vertues: The *Bramble*, and the *Walnut-tree*, yield plenty of Liquor by cutting, which doubtleſs are not without their Vertues.

SECT. II.

Of the Juices of Fruits and Berries.

Wine is made of the Fruit of the *Vine*, and is the moſt common, yet the richeſt Drink the World affords.

Cider of the Fruit of the *Apple-tree*, and *Perry* of the *Pear-tree*; of more uſe and advantage in theſe *Northern* Regions, than the Blood of the Grape.

Drinks made of the Fruit of the *Cherry*, *Currant*, *Gooſeberry*, *Raſberry*, *Mulberry*, *Elder*, and ſeveral other Trees, in this and ſeveral other more *Northern* Countries, become very pleaſant; as alſo thoſe made of *Blackberries* and *Strawberries*: their ſeveral Preparations are likewiſe herein treated of.

Coco-nuts yield alſo a Milk or Oyl, uſed in the Countries where they grow for Drink; but being gathered green, they give a very pleaſant and thin Juice, which the Natives drink of whilſt it is freſh.

In *Negroland* are ſeveral Fruits that yield *Wine*, in great eſteem among the Inhabitants, as *Sebankou*, and *Syby-Wine*, *&c.*

In *Jamaica* and *Braſilia* grows the Fruit *Ananas*, on a ſtalk of a foot long, ſurrounded with ſixteen ſharp Leaves, between which is the Fruit like a *Pine-apple*, but much bigger; the innermoſt Pulp whereof melts on the tongue, and is of ſo delicious a taſte, that it exceeds all other Dainties: Of this Fruit is made a Drink no way inferiour to *Malvaſia-Wine*.

Of

Of the *Pomegranate* is extracted an excellent Juice, where plenty of them is to be had.

The *Chineſes* make a Drink of a ſort of Fruit there, that grows on a Tree beſet with Thorns like the *Lemon-tree:* the Fruit is near as large as a Mans Head, with a Shell over it; the Pap within is reddiſh, and ſour-ſweet, like unripe Grapes.

Coffee is alſo made of a certain *Berry.*

In the *Caribbe Iſlands*, the Tree *Acajou* bears a Fruit like a very fair Apple, of which the Iſlanders make a Drink very much in eſteem among them, being of an excellent taſte.

In *Peru* and *Chili* grows the *Unni*, by the *Spaniards* called *Murtilla*, bearing a Fruit not unlike little red Grapes, which are of a tart taſte. The Wine preſſed out of this Fruit, is clear to the Eye, pleaſing to the Palate, and good for the Stomach.

In *Braſilia* is uſed a Drink called *Pacobi*, made of the Fruit of the Tree *Pacobebe:* They alſo make the Drink *Caoi*, of the Fruit of the *Ocaijba-tree*, which being ſtamped in a wooden Mortar, and ſtrein'd, it firſt looks like Milk; but after a few days ſtanding, purifies, and intoxicates the liberal Drinkers of it.

SECT. III.

Of Grains.

From divers ſorts of Grains are extracted ſeveral excellent Drinks. From our *Britiſh* Grains, as *Barley*, *Oats*, *Wheat*, *&c.* are extracted *Beer*, *Ale*, and *Mum*.

The *Africans* in *Negroland* brew their Beer of *Mille*, which they ſteep in Water till it ſhoots, and then dry it in the Sun, and ſtamp it to Meal in great Mortars, with whom Mills are not yet in uſe; then they pour on it boiling-hot Water; they make it alſo ferment with Yeaſt, imitating thereby our *European* Malt-drink. It is probable this *Mille* is the ſame with that *Millet* with which the *Dageſtan Tartars* make their *Bragga*, which they eſteem very delicious, drink freely of it, and grow ſuddenly drunk therewith.

On the Coaſt of *Chili* and *Peru* in *America*, the Inhabitants make a Liquor of *Mays*, which grows there in abundance: they ferment it like our *Ale*, and drank moderately, it refreſheth; but the Inhabitants uſually follow it ſo cloſe, till they are mad-drunk.

They make alſo a very pleaſant Drink of the

the Grain *Teca*, dried in the Sun, thraſh'd, and parch'd in hot Sand, then ground on a ſquare flat Stone, with a Roller of Stone, and infuſed into a great quantity of Water.

The *Chineſes* make excellent Drink of *Rice*, which is very pleaſant of taſte, and preferred by them before Wine.

In the Iſle *Formoſa*, not far from *China*, the Natives make a Drink as ſtrong and intoxicative as Sack, out of *Rice*, which they ſoak in warm Water, and then beat it to a Paſte in a Mortar; then they chew ſome *Rice-meal* in their Mouths, which they ſpit into a Pot till they have got about a quart of Liquor, which they put to the Paſte in ſtead of Leaven or Ferment: And after all be kneaded together till it be Dough, they put it into a great Earthen Pot, which they fill up with Water, and ſo let it remain for two Months; by which means they make one of the moſt pleaſant Liquors a Man need drink: the older the better and ſweeter, although you keep it five and twenty or thirty Years.

SECT. IV.

Of the Extracts of Leaves, Stalks, and Juices.

Various Drinks are alſo made of the Leaves and Stalks of Plants; the principal whereof is made of the Leaves of *The*, or *Tea*; and a counterfeit thereof, of our *Engliſh Betony*, but far inferiour to it.

Of the *Sugar-cane* is none of the meaneſt Drink prepared; for in the *Eaſt* and *Weſt-Indies* various Drinks are made of it.

In the more *Southern* Parts of *America*, the Natives chew the Herb *Cava*, and put it into a wooden Trough, and add Water to it, and mix it well; which they eſteem a *Royal Repaſt*.

Of the Rinds of *Pomegranates*, with an addition of *Cinamon*, the *Perſians* make a pleaſant Drink.

SECT. V.

Of Roots.

Several Drinks are made by many people out of Roots; as the *Æthiopians* make a Drink of the Root they call *Dacha*, by mixing it with Water, which cauſeth Ebriety;

ety; which Root ſerving for eating as well as for drinking, they take great care to propagate.

In the *Southern* part of the *Weſt-Indies*, the *Caſſavi-roots*, which ſerve them in ſtead of Bread, the Natives prepare (by ſtamping of it) to make their Drink which they call *Parranow*.

The *Braſilians* prepare their Drink *Aipu* out of the Root *Aipimacaxera*, either by an old toothleſs Woman chewing the ſame to a Pap, and ſpitting it into a Pot, on which they pour Water, and afterwards boiling it leiſurely, ſtirring it all the time it ſtands over the Fire; or by boiling the ſaid Root ſo long till it comes to be like Butter-milk, and then letting it ſtand till it hath done working; which makes a very pleaſant drink.

The ſame People alſo preſs out a Drink from *Potatoe-roots*, which they call *Jetici*.

Out of Contuſed Carrots a Juice hath been preſſed, and proved to be a pleaſant ſweet Liquor; this is fit to be inquired into, and Experiment to be made of it.

SECT.

SECT. VI.

Of Mixtures of divers things.

From the mixtures of ſeveral Ingredients are many pleaſant and neceſſary Drinks prepared; among which the ſeveral Liquors made of *Honey* may be included, it being by the induſtrious Bee extracted out of ſo various Materials, and made uſe of by moſt Nations to make their inebriating Liquors withal; which rather than it ſhould fail of that end, ſome of them add *Opium* to the Compoſition.

Chocolate is alſo compounded of ſeveral things, and is the moſt eſteemed in *America* above any other Drink whatſoever; and much in uſe throughout moſt of the Maritime parts of *Europe*.

Pale-punts, here vulgarly known by the name of *Punch*; a Drink compounded of *Brandy* or *Aqua Vitæ*, Juice of *Lemons*, *Oranges*, *Sugar*, or ſuch like; very uſual amongſt thoſe that frequent the Sea, where a Bowl of *Punch* is an uſual *Beverage*.

In the *Eaſt-Indies* they extract an excellent Liquor, which they call *Arak*, out of *Rice*, *Sugar*, and *Dates*; which is a kind of *Aqua Vitæ*, much ſtronger and more pleaſant than any we have in *Europe*.

Thus

Thus having given you a hint of ſome of the moſt general Drinks that are in uſe in moſt parts of the World, (every Nation having ſome peculiar or proper Drink which they moſt affect) alſo of what, and after what manner, as near as I could from ſuch information as I find, the ſame are extracted and prepared; to the end that our own Country-men may thereby receive encouragement to attempt the like from thoſe Materials our *Britiſh* Iſle affords, which I ſhall in this Diſcourſe endeavour to demonſtrate to be as many and as good as are in any Place or Country in the World; and that by the true and genuine way or method of ordering the ſame, a ſufficient quantity of many and various ſorts of Wines and other pleaſant Liquors may be here prepared, not only to ſuffice our own Inhabitants, but yield a conſiderable ſupply to our Neighbours; to the great improvement of this our Country, and the diminution of that unreaſonable gain and advantage other Nations make by the Trade hither of Drink only.

CHAP.

CHAP II.

That the Juices of Fruits are the beſt of Drinks, and Univerſally celebrated.

SECT. I.

Their Antiquity.

IT appears by the moſt true and antient Hiſtory, that the firſt Liquor our Forefathers uſed to gratifie their Palates, and delight themſelves withal, (beſides common Water) was the Blood of the Grape; which was no ſooner underſtood to be ſo excellent and pleaſant a Drink, but it ſet them at work to plant and propagate that Tree, to dreſs and order their Vineyards, and to extract and preſerve the Juice thereof for their extraordinary Repaſt

SECT. II.

Their Univerſality.

It alſo appears from the obſervation of Travellers and Hiſtoriographers, that the Natives of moſt of the known parts of the world, have made uſe of ſome Fruit or other, naturally growing in their own Countries,

Countries, as the moſt delicate of their *Beverages*.

As the Blood of the Grape is preferr'd on the *North-ſide* of the *Tropick* of *Cancer*, almoſt in every part of the Temperate *Zone*, unto the 49 Degree of Latitude, unleſs where the Laws of *Mahomet* forbid; whoſe Diſciples often tranſgreſs that Law even to exceſs, and much leſſen that imaginary ſin (as they ſuppoſe it otherwiſe to be) if the Chriſtians dreſs their Vineyards, and prepare their Wines.

SECT III.

The Reaſons thereof.

Neither is it without juſt cauſe that that Liquor is celebrated in thoſe Countries above any other Drink whatſoever, it being ſo Homogeneal to the natures of thoſe people that inhabit there. All Wines that proceed from the Vine, being of a corroborative and mundificative nature, and withal have an exhilarating and vivifying faculty with them, that to thoſe whom the too frequent uſe hath not abated or dulled the Edge of their Virtues, they are rather Cordials or Reſtoratives, than ordinary Nutriment, or familiar Medicine.

The

The Juice of the Apple, *Cider*, is for the ſame cauſe preferred on this ſide the 49 Degree of Latitude, where the Blood of the Grape obtains not that degree of maturity in the Fruit, as in the more hot Countreys: And the Apple being but a pulpy Fruit, not enduring thoſe exceſſive heats and droughts thoſe Countreys beyond that Degree, and more *Southerly*, are ſubject unto. It being obſerved, that in *Normandy*, and the Northern parts of *France*, *Flanders*, *&c.* their *Cider* far excels their *Wines:* Here in *England* alſo, *Cider* well made of mature Fruits, not only excels any *Wine* made here, but the *Wines* that are made in the moſt parts of *France*, *Germany*, or any other Countrey on this ſide the 40 Degree of Latitude.

The principal cauſe of the excellency of theſe Liquors above any other prepared Drinks, is for that this Juice or Sap is not only collected out of the Earth by the ſmall fibrous Roots of the Trees, but exhaled by the attracting power of the Sun, into the Branches and Stalks, thence deſcending into the Fruit, where it is by the continual animating heat of the Sun maturated. Which natural proceſs of Extraction, Diſtillation, Concoction, Digeſtion, and Maturation,

turation, far exceeds the Art of Man to imitate, much leſs to exceed. Wherefore, not without cauſe, may thoſe Liquors be worthily preferred to any other Drinks whatſoever: and more particularly and eſpecially, the Juice of the Apple in theſe more *Northern* Regions, before any other Liquors in what Country ſoever prepared. Not but that thoſe Liquors, in thoſe places where they grow, may be much better than any other produced there: but being tranſported into a more remote Country, and of a different Climate, it begets an apparent alteration in the Drink it ſelf; which, together with the great difference that is between the Inhabitants of either Countrey, very much derogatteh from the happy effects that ſuch Liquor might produce, if made uſe of nearer the Place of its firſt Extraction.

And as the Inhabitants of theſe *European*, and part of the *Aſian* Countrys, do affect, and principally eſteem theſe Juices of the *Grape* and *Apple*; ſo they of the more remote parts of *Aſia* and *Africa*, put a great value on the Juice of *Coco-nut*, taken either before it be quite ripe, when it yields a thin, though immature, yet pleaſant Liquor; and when more mature, then a more rich and oily Repaſt.

In

In *America*, no Drink ſo much in eſteem as *Chocolate*; the principal Ingredient whereof is the Nut *Cacao*, which in the vaſt Regions there ſubdued by the *Spaniards*, are propagated in ſuch abundance, that the accompt thereof is almoſt incredible; and for no other uſe, than to be converted into that excellent *Regallo*, *Chocolate*.

The delicious Liquor made of the *American* Fruit *Ananas*, is alſo much in eſteem in *Jamaica*, *Braſilia* and thoſe parts

Notwithſtanding theſe Wines or Liquors have obtained the pre-eminence above all other Drinks throughout the greateſt part of the known World, yet are there ſeveral ſorts of more inferiour Fruits that yield very pleaſant and wholſom Drinks, (as before may be obſerved) that can never be advanced to that repute or univerſal acceptance, as theſe laſt mentioned; but may nevertheleſs be compared, if not preferred to any other Drinks extracted or prepared from any other Subject than Fruit.

The Juices of Fruits being mature, are worthily eſteemed to be very grateful to the Stomach, and of eaſie digeſtion; being, by reaſon of their concoction and maturation in the Fruits, become before-hand

a *ſemi*

a *ſemi ſanguis*, or half-Blood, and are not ſo ſubject to putrefaction as other Extractions of a meaner Claſſis; which is alſo the reaſon, that with a due ordering of them, by a meer natural Maturation, the moſt of them will keep in their full purity ſeveral Months and years; and ſome of them for many years increaſing ſtill in ſtrength, purity, and pleaſantneſs; which no other Extracts are capable of.

CHAP. III.

That Cider, *and other Juices of our Engliſh Fruits, are the beſt Drinks for this Country.*

SECT. I.

Its Antiquity and Nature.

HAving taſted a little of thoſe ſeveral Dainties that are in moſt Countries liquidly prepared to pleaſe the Palate, I hope every *Engliſh* man, or Native of this Iſle, on his return hither, will conclude with me, that our *Britiſh* Fruits yield us the beſt *Beverages*; and of theſe Fruits; the *Apple* the beſt, which is here called *Cider*.

As for the Antiquity of this Liquor in this Country, much might be ſaid, if you will grant that the name *Wine* was formerly, as well as lately, uſed as a common name to the Juices of ſeveral other Fruits beſides the *Grape*; there being mention made of ſeveral Vineyards that have antiently been in *England*; as that of *Ely*, *Dans Vinea Vinum*, a Vineyard yielding Wine; and that of *Bromwell-Abbey* in *Norfolk*, bearing the names of Vineyard to this day.

The name Cider being *Britiſh*, having ſome Analogy with the Greek word *Sicena*, is alſo an Argument that it was a Drink amongſt the Antient *Britains*, they wanting Names for new things.

The Tradition that Tythes have been paid for Wines made of certain Vineyards in *Glouceſterſhire*: And *Camdens* teſtimony that there was no County in all *England* ſo thick ſet with Vineyards as *Gloceſterſhire*, nor ſo plentiful in increaſe; the Wines made thereof not affecting their Mouths that drank them with an unpleaſant tartneſs, *&c.* and adds that to be the reaſon why many places in that Country, and elſewhere in *England*, are called Vineyards: All theſe Teſtimonies may be as well for the planting of Orchards for *Cider*, as Vineyards for *Wine*;

Wine; the name *Wine* might be then uſed for that Liquor, as now for other, and the preference they then gave to the Wines of *Glouceſterſhire* before other, in not being ſo tart, is a good Argument that thoſe Wines were *Cider*, becauſe the *Spontaneous Trees* or *Wildings* of that Country might very well yield a better Drink then, than the Apples formerly planted in the Orchards of other parts of *England*; it being but of late years that pleaſant Fruit, or good *Cider*-Fruit either, have been propagated in moſt parts of this Country; and in ſome places not any to this day.

The name of *Cider*, if from *Sicera*, is but a general name for an inebriating or an intoxicating Drink, and may argue their ignorance in thoſe times of any other name than *Wine* for that Liquor or Juice in the *Saxon* or *Norman* Language, either of thoſe Nations being unwilling (its probable) to uſe a *Britiſh* name for ſo pleaſing a Drink, they not affecting the *Britains*, made uſe of few of their words: But ſince that, that Wines have been Imported from Foreign parts in great quantities, the *Engliſh* have been forced to make uſe of the old *Britiſh* name Sether, or *Cider*, for diſtinction ſake, although the name *Vinum* may be as

proper for the Juice of the *Apple* as the *Grape*, if it be derived either from *Vi* or *Vincendo*, or *quaſi Divinum*, as one would have it.

Alſo the vulgar Tradition of the ſcarcity of Foreign Wines in *England*, *viz.* that *Sack* which then was Imported for the moſt part but from *Spain*, was ſold in the Apothecaries Shops as a Cordial Medicine; and the vaſt increaſe of Vineyards in *France*, (*Ale* and *Beer* being uſual Drinks in *Spain* and *France* in *Pliny*'s time) is an Argument ſufficient that the name of *Wine* might be attributed to our *Britiſh Cider*, and of *Vineyards* to the places ſeparated for the propagating the Fruit that yields it.

SECT. II.

Cider *preferred to Foreign Wines.*

Whether it be from the greater degree of concoction in the Juice of the *Apple*, being thinner diſperſed in the body of the Fruit, than that is which is in the *Grape*, or whether it be becauſe the greateſt part of the Wines uſually imported from abroad, are not of their beſt extraction, or impaired by tranſportation; the well-made *Cider* of ſome parts of *England* is to be preferred

ferred by the moſt indifferent and unprejudiced Palates: as the moſt acute *John Evelin* Eſq; in the Preface to his *Pomona*, hath diverſly illuſtrated, eſpecially by that Preſident of the Challenge of Mr. *Taylor* with the *London*-Vintner, where the *Red-ſtreak-Cider* gained the Victory over the Vintners beſt *Spaniſh* or *French Wine*, by variety of Judges.

Wine of the *Grape*, although of it ſelf, being well made and preſerved, without thoſe too common *Sophiſtications*, *Adulterations*, *Brewings*, or *Compoſitions*, is without doubt an excellent Cordial, and taken moderately, much conducing to health and long life: yet the conſtant uſe of it as a quotidian Drink, Experience hath taught us, is very injurious to the Drinker. If it be new, that is to ſay, under the age of a year, or be ſet into a new fermentation by the addition of new *Wine* or *Stum*, it purges, and puts the Blood into a fermentation, that it indangers the health of him that drinks it, and ſometimes his life. If it be old *Wine*, which is commonly the beſt, then the Vintners cunning in preſerving it, and making it palatable by his ſecret and concealed Mixtures, renders it dangerous to be drank either faſting, or in great quan- *More wholſom.*

tity; many having died ſuddenly meerly by drinking of ſuch Wine: For there is no Drink more homogeneal to the Blood than *Wine*, the Spirit thereof being the beſt Vehicle of any Medicine to the moſt remote parts that the Blood circulates in: therefore if any evil mixture be in it, the more it operates, and is ſooneſt conveyed to the Heart and all other parts of the Body.

It is recorded by *Pliny*, That *Androcydes*, a noble, ſage, and wiſe Philoſopher, wrote unto *Alexander* the Great, to correct and reform his intemperate drinking of Wine, whereto he was very prone, and in his fits of Drunkenneſs very rude; the immoderate drinking whereof is by him affirmed to be very dangerous and pernicious.

As for *Cider*, that we have had the long and conſtant experience of the making of it, and preſerving it for ſeveral years in its true and genuine taſte; *Cider* of two and three years old being not unuſual in the *Cider*-Countries, the late Lord *Scudamore* having had a Repoſitory on purpoſe to preſerve it in, at his Seat in *Herefordſhire*, and that without any Sophiſtication or Adulteration, but by the only Art of right preparing

preparing and ordering it; by which he preſerved *Cider* many years, it ſtill retaining, or rather improving its goodneſs.

The conſtant uſe of this Liquor, either ſimple or diluted, hath been found by long experience to avail much to health and long life; preſerving the Drinkers of it in their full ſtrength and vigour even to very old Age; witneſs that famous Hiſtory in my *Lord Bacon*'s *Hiſtory of Life and Death*, of eight Men that but a little before his time danced a *Morris-dance*, whoſe Age computed together made Eight hundred years; for what ſome wanted of one hundred years, others exceeded. Theſe were reported to be Tenants of one Mannour, belonging to the Earl of *Eſſex* at that time, and to be conſtant *Cider*-drinkers. And divers other Preſidents of the like nature, *Herefordſhire*, *Gloceſterſhire*, *&c.* can furniſh you withal.

If it be new and unfermented, it prejudiceth not the Drinker; nor if it be old, ſo that its unpleaſantneſs forbids you not to drink it, but for its unpleaſantneſs ſake.

Its agreeing with our natures, adds much to its Salubrity, becauſe of its innocency, it yielding alſo a good Spirit, which may probably prove a Vehicle anſwerable to

that of other Wine: At leaſt it may make a very good *Brandy*, which (when the Fruit is grown more common) in plentiful years may be experimented and improved.

More pleaſant. Although there is no *Liquor*, *Drink*, nor *Diet* alike pleaſant to all, ſome preferring that dull *Coffee* before any other Drink whatſoever; ſome *Stale Beer*, others *Fat Ale*, *Mum*; one *Claret*, another *Sack*, before any other Drinks: Yet is there not any Drink known to us ſo generally palatable as *Cider*; for you may make it ſute almoſt with any humourous Drinker: It may be made luſcious, by addition of a good quantity of ſweet *Apples* in the firſt operation; pleaſant, being made with *Pippins* or *Gennet-Moyles* only; racy, poignant, oyly, ſpicy, with the *Redſtreak*, and ſeveral other ſorts of Fruits, even as the Operator pleaſes. And it ſatisfies thirſt, if not too ſtale, more than any other uſual Drink whatſoever.

More profitable. But that which moſt tempts the *Ruſtick* to the Propagation of this Fruit for the making of this Liquor, is, the facile and cheap way of the raiſing and preparing of it; for in ſuch years that Corn is dear, the beſt *Cider* may be made at a far eaſier rate than

than ordinary *Ale*; the thoughts whereof add much to the exhilerating virtue of this Drink, and I hope will be a good inducement to the farther improvement of it.

Next unto *Cider*, *Perry* claims the precedency, eſpecially if made of the beſt juicy *Pears* celebrated for that purpoſe. *Perry.*

The Wines or Drinks made of *Plums*, *Cherries*, *Currants*, *Gooſeberries*, *Raſberries*, yea, and of our *Engliſh Grape*, may be ſo prepared, that they may be more acceptable to our Palates, and more healthy, pleaſant, and profitable, than thoſe Foreign Wines many are ſo fond of. *Juices of other Fruits.*

CHAP. IV.

Of the beſt and moſt expeditious Ways of Propagating the ſeveral ſorts of Fruit-trees for the ſaid uſes.

SECT. I.

Of Propagating the Apple-tree.

THere is no Fruit-tree in this whole Iſle of *Great Britain*, that is ſo univerſal as the *Apple-tree*; there being but

but few Places, and but little Land, wherein it delighteth not: hardly any Place ſo cold or moiſt, hot or dry, but it will thrive and bear Fruit. Neither is there any Fruit-tree more eaſily propagated, nor any that bears ſo great a burthen of Fruit, as this doth: Therefore is the planting and increaſing of them more to be encouraged and promoted, than of any other, conſidering alſo the excellency of the Liquor extracted from its Fruit. For the Propagating whereof, the firſt thing to be conſidered is, the Nature and Poſition of the Land wherein it is to be planted.

Although this Iſle be ſtiled the *Queen of Iſles*, for its temperature of *Air*, fertility of *Soil*, *&c.* that we may truly ſay of her, as *Rapinus* of *France*,

Though to all Plants each Soil is not diſpos'd,
And on ſome Places Nature has impos'd
Peculiar Laws, which ſhe unchang'd preſerves;
Such ſervile Laws Great Britain *ſcarce obſerves:*
She's fertile to exceſs, moſt Fruits ſhe bears,
And willingly repays the Plowman's Cares.

Yet

Yet is there required ſome Judgment from the Husbandman, in placing each Tree or Plant in the proper Soil it moſt delights in, or in adapting Plants to the Nature of each Soil you have to plant; for Trees will ſtrangely proſper in Ground that they like, comparatively to what they will do if they are planted in Ground wherein they delight not. *Adapting Fruits to the Soil.*

Virgil was of the ſame opinion, when he ſang,

Nec verò terræ ferre omnes omnia poſſunt, &c.

All Grounds not all things bear: the Alder-tree
Grows in thick Fens; with Sallows, *Brooks agree;*
Aſh, *craggy Mountains; Shores, ſweet* Myrtle *fills:*
And laſtly, Bacchus *loves the Sunny Hills.*

The *Apple* it ſelf, which is but one kind of Fruit, yet there are ſeveral ſorts of them that delight in ſome Places, and will not thrive in another: which made the *Kentiſh-men* ſo addict themſelves to the planting of the *Pippin* and *Codlin*, becauſe no other Apple would proſper ſo well in that

that County; which gave them the names of *Kentiſh-Pippin* and *Codlin*; when in ſome other Places neither of thoſe Fruits will proſper without Art, but are deſtroyed by that pernicious Diſeaſe the Canker. The *Redſtreak* alſo is obſerved to proſper better, and yield a better Juice in ſome Places than in other, although but in the next Pariſh.

The ſame is to be obſerved in Pears: Summer-Pears will thrive where Winter-Pears will not. Which is the firſt thing to be conſidered of, to wit, what Species of Fruits are moſt natural to the Country or Place where you intend to raiſe your Trees; which may be known partly by obſervation of the growth of Trees in the Neighbourhood, and (where that ſatisfies not) by experimenting variety of ſorts in your Ground. And when you have reſolved what Species to propagate, then ſelect or ſet out your Ground.

What ſort of Land beſt.

For the diſtinguiſhing whereof, there are many Rules; but he that is ſeated or fixed in any place, and cannot conveniently change his Habitation, muſt be content with his own: and if any defect or diſadvantage be in it, it may be it hath ſome advantage that another wants. If it lie to the

the *North*, the Trees bud and bloſſom the later, and many times the Fruits ſucceed the better, and is the freer from the injurious *South*-winds in the Autumnal Seaſon.

For in the Spring deſire not too much Heat, Rapinus.
Leſt the remaining Cold your Hopes defeat:
And the Sun's Kindneſs then ſhould prove his Crime,
If forward Fruit appear before its time.

If it lie to the *Eaſt*, it hath not only the advantage of being later budded and blown, becauſe of the cold *Eaſterly*-winds in the Spring; but the Fruit ripens the better, the Morning-Sun in the Summer being by much the beſt; and the Fruits are alſo freed from the *Weſtern*-winds, which with the *South* are the worſt.

In th' end of Spring, when welcome Heat re- Rapinus.
turns,
When ev'ry Garden lovely Fruit adorns,
Sometimes a Tree by ſudden Tempeſts croſt,
The whole Years Hopes in one ſhort Night has loſt.

If your Land be on a dry or riſing Ground, you may plant them the thicker, which will

will cover and ſhade the Ground the ſooner, and make them bear the better: the Fruit will alſo yield a more Vinous Liquor. If your Ground lie in a cold moiſt Vale, the ſooner may you raiſe a natural Fence or Security about it, to defend your Trees from cold Winds and ſtiff Guſts, which diverſly annoy your Trees and Fruits. The worſe your Land is, the more you have for your Money; the better it is, the leſs Charge to plant it, and the ſooner will you reap the Benefit of your Labour,

But if you have the liberty to chuſe what Land you will for planting of Fruit-trees, then for the *Cider-Fruit* chuſe a good warm light Rye-land: for the heavier, colder, and moiſter Wheat-land is not ſo good, the *Cider* being not ſo clear nor Vinous.

If the Ground be very light and rich of it ſelf, or ſo made by improvement, ſeveral ſorts of Apple-trees, eſpecially the *Pippin*, will be ſo apt to the Canker, that they will ſcarce ever be large Trees: Therefore a firm and ſtrong Land is beſt for Winter or long-laſting Fruit; but for the ordinary *Cider* or Summer-Fruit, Land cannot be too light. The more it inclines to redneſs, the better.

But

When

When with due Judgment you would chuſe a place
Proper, wherein to raiſe a future Race,
Let it be in the Sun; without his Aid,
The Ground will languiſh, and the Fruit will fade. Rapinus.

If the Ground be too hot, dry, ſhallow, or barren, raiſe the Land on broad Ridges, that the middle of them may be about twenty or thirty Foot diſtance, according as you intend to plant your Trees: Let the Intervals between the Ridges be about ſeven or eight foot broad, or more, and the Earth taken up between about a foot deep caſt on the Ridges, which will make the Ground thicker than before it was, and your Trees you may plant deeper in it than otherwiſe you could do; where they will thrive very well, as may be perceived on the Banks of ſome Lands in the Hedges, that Apple-trees will thrive better there than on the level Land. *Amendment of Land.*

If Water cannot be obtained to moiſten it ſometimes, by ſmall Rivulets running through it, which will highly advance the growth and fertility of your Fruit-trees; Chalk, Marle, or Clay laid and ſpread on the

the ſurface of it, will cool and ſadden it, and make the Ground very rich, and yield a good Graſs, under which the Roots of the Trees will ſpread with delight.

Fern, or any other Vegetable, nay Stones covering ſuch Land, will preſerve it cool and moiſt in the Summer, as well as warm in the Winter.

If the Ground be cold, moiſt, and ſpewy, endeavour what you can to drain it, either by open Trenches, or cloſe, which are made after this manner. Dig ſeveral narrow Trenches, one between each row of Trees, deſcending to ſome Ditch at the lower end of your Ground, and lay in the bottom of it Alder-Frith, or Faggots (ſome ſay Beech will laſt as long) and fill the Trenches again on the ſaid Frith or Faggots, and level your Ground as before; by which means the Water will inſinuatingly paſs through the ſaid Wood to the lower ſide of your Ground, leaving the reſt the drier: But if you cannot conveniently do this, then raiſe it as before is directed for your dry Land.

For the Mixture or Compoſition, any Dung or ſandy Soil is very good, ſo that the Dung, whilſt new, come not too near the Roots of your Trees.

But

But if your Ground be of a cold Clay, or ſtrong ſtiff Nature, then the beſt way is to caſt it up as before, tempering it with Sand, or ſandy compoſt, any ſort of Dung, or rotten Vegetables; and to plant it with the moſt hard Apples, *Pippins*, &c. and keep the ground annually plowed or digged to the very Stem of the Tree, which will be a means to preſerve the Trees from Moſs, which Trees in this ſort of Ground are naturally ſubject unto.

If Land be ſubject to be overflown by the ſwelling of Rivers, or other falls of Water, it often proves very good for Fruit, ſo that it be drained again, and the Water not ſuffered to ſtand too long on it, and the Land not of a cold ſtill Nature.

Poſition or Situation of Land to be planted.

If your Land decline a little towards the *South-Eaſt*, it is eſteemed the beſt Situation of Land to plant Fruit-trees on: Firſt, By reaſon that in the Spring, *Eaſterly*-winds keep back or check the Bud. Secondly, For that it hath the benefit of the whole *Anti-Meridian* Sun, which is eſteemed the beſt in the Summer and Autumn, diſperſing the cold Dews early from the chil Fruits; the Air being warm'd by the Sun all the day, is ſufficient in the Evening to preſerve and continue the ſame heat with-

out the Sun-beams. Thirdly, It hath ſome advantage by this Poſition from the Winds in the Autumn, that blow from the *South-Weſt* and *Weſt*, uſually prejudicial, and ſometimes deſtructive to the Fruits.

Fencing or ſheltring of Land. If you plant your Fruit-trees in your Hedge-rows, or *ſparſim* here and there about your Land, your only care will be to fence and preſerve each Tree from the wrong or injury it may ſuſtain by Cattel, unleſs you graft on Stocks that are already nurſed up in the Hedges, naturally defended thereby from ſpoil; but if in open Places, care muſt be taken to Buſh them, ſo that Cattel may not rub againſt them, nor crop them.

If you make a Plantation any where by it ſelf, if it be not otherwiſe defended by Hill or Trees, you may at the ſame time as you plant your Fruit, plant other Trees on the confines of your Plantations. If your Ground be moiſt, then may you plant *Poplar* or any other of the taller ſort of Aquaticks: If a dry Land, then *Wallnuts*, *Aſh*, or any Tree that delights on dry Land. For ſuch defence preſerves your Trees from blighting Blaſts in the Spring, and deſtructive Winds in the Summer and Autumn.

At

At the ſame time alſo when you plant your Fruit-trees, it will much conduce to the preſervation of them when Mature, if you plant a good Quick-hedge of *White-thorn*, which will be a very good Fence by the time that the Fruit-trees come to bear, ſufficient to keep out the Cattel from cropping the tender Twigs of your Fruit-trees, and rubbing againſt their Stems; and unruly People from deſtroying the Fruit.

SECT. II.

Of the Nurſery of all ſorts of Fruit.

To obtain as well good Trees as good Fruits, is a great care. Some pretend to raiſe excellent Fruits from the Kernel of the Apple, which rather carrieth with it the nature of the Stalk the Tree was grafted on, than the Fruit it proceeded from: therefore I ſhall take little notice of it here. Although many have pretended to have raiſed ſome new Species of Fruits by this means, Grafting being by all, as well our Modern Planters as the Antient, concluded to be the beſt and moſt expeditious way to preſerve the right Species of Fruits, and accelerate their bearing. The choice

of the Stock is therefore to be conſidered; which moſt agree the *Crab-ſtock* to be the beſt, although many affirm that the *Wilding-ſtock*, or of the *Paradiſe-Apple*, to be preferred: for a Tree grafted on a *Crab-ſtock*, is of longer duration than any other, the Wood being more hard, and leſs ſubject to decay, and the Root more naturally ſpreading in our Soil than any other. It alſo not only preſerves, but quickens and enlivens the Guſt of any delicate Apple.

But if the Apple you intend to Propagate be over-tart, then ſweeten it on a *Gennet-Moyle* or *Wilding-ſtock*, rather than on a *Crab-ſtock*.

Raiſing of Stocks. When you are reſolved on what Stocks you intend to graft, then provide your ſelf with the Chaff or *Mure* of that Fruit you derive your Stock from, and ſpread it thin over a Bed of Earth dig'd, dreſſed, and cleanſed from Weeds; and ſpread or ſift Earth two or three Fingers thick lightly over it, that it may be all covered; and ſo let it lie all the Winter, and in the Spring following you will have plenty of young Stocks appear promiſcuouſly. During the Summer, keep them weeded clean, and the Winter following draw them where they are too thick or irregular; firſt tranſplant them

them into other Beds well dreſſed, as before, in ſuch order as that you may conveniently paſs between them to dreſs, weed and graff them, and there let them ſtand until they are big enough to graft.

Or you may obtain *Crab-ſtocks* out of the Woods and Hedge-rows, and plant them in the Places where you intend they ſhall ſtand.

Obſerve always, that you make your Seminary in as barren Land as you can, or more barren than the Place you intend to remove them into; by which means you may raiſe a fair Plantation on a mean Soil: Where many have been diſcouraged by removing of their Trees out of a rich Nurſery into a mean Land, blaming the Tree or Soil, when it is indeed their own ill husbandry. The *French* Poet and all good Planters adviſe the ſame.

Warm Air, and moiſture are by Apples lov'd:
But if to ſtony hills they are remov'd,
You muſt not blame them, if they then decay.

Meaning a removal into a dry barren ſtony Land from a warm moiſt Soil.

The *Crab-ſtock* alſo thrives beſt when removed from a cold and dry Hilly-land,

to a warm and fertile Soil; but thoſe raiſed from the Seed are the beſt.

It is to be obſerved, that the Stocks raiſed of Seed or Kernels emit a downright Root into the Ground, called a *Tap-root*, which in the removal of your young Stocks, ought to be taken away; then will the Roots of your Stocks ſpread, which will make them the eaſier to be removed, when they are grafted and fit for tranſplantation. Alſo the ſpreading Root is the beſt both for the feeding the Tree and bearing Fruit.

Thus having provided your ſelf of Stocks, either of Kernels in your Nurſery, or in your Fields, Hedge-rows, or other Places, of *Crab-ſtocks*, either naturally growing or planted there, which having ſtood a year or two, are fit to be grafted on: Then you muſt furniſh your ſelf with Grafts ſuitable to your deſign.

Choice of Fruits. Before you cut your Grafts, conſider what Fruits you are moſt inclinable to propagate. But ſeeing that my intentions are only to treat of Drinks, I ſhall only mention here ſuch Apples that are proper for *Cider*, although otherwiſe uſeful, and to be preferred, in ſome caſes, before the other ſorts that are leſs apt for the Mill.

Cider-

Cider-fruit may be divided into three Parts: First, Such that are for making early *Cider*, or for the preſent drinking. Secondly, Such that are for making the beſt, rich, Oyly, Spicy, and highly-reliſhed *Cider*, and alſo long-laſting. Thirdly, Such that are uſeful Fruit for the Table, yet making a very pleaſant and acceptable *Cider*.

As for the firſt Claſſis, the *Codlin* is the earlieſt, beſt bearer, and eaſieſt to be propagated: You may graft them on Stocks as you do other Fruit, which will accelerate and augment their bearing; but you may ſave that labour and trouble, if you plant the Cions, Slips, or Cuttings of them in the Spring-time, a little before their budding; by which means they will proſper very well, and ſoon become Trees; but theſe are more ſubject to the Canker than thoſe that are grafted. *Codlin.*

Theſe, of all the ſorts of Apple-trees, agree beſt in a near Neighbourhood of their own Species; for ſet them as cloſe as you will, they will thrive, and bear very well: therefore are they fit to plant in Rows, Walks, and Avenues, and make a very graceful and pleaſant proſpect.

It is uſual with ſome to plaſh them to Poles, to make a Palliſade-hedge with them;

which is not commendable, becauſe they are pithy Trees, and ill endure to be lopt, thriving beſt when permitted to ſhoot upright, and bear the more. They delight alſo in ſhady Groves or Walks.

Gennet-Moyle. The next is the *Gennet-Moyle*, which delights moſt to grow ſingle from its Company; but as for its being grafted or growing of Sets, it is very much like the *Codlin*. This Fruit makes by far the better *Cider*, and is for preſent drinking, and almoſt equals the beſt of *Ciders*.

There are alſo ſeveral other Summer-Fruits that yield very good *Cider*, and fit to be propagated, were they not too pleaſant to the taſte, tempting idle Perſons to waſte the Fruit, and injure the Trees.

Redſtreak. Of the ſecond Claſſis, is the *Redſtreak*, which is now the moſt univerſally celebrated for its Juice, of any Apple this Iſland yields: It is one of the ſorts of *Wildings* of *Herefordſhire*, and for the excellency of its Liquor, is now ſpread into moſt Parts of *England*. There are ſeveral ſorts of them, the one more red than the other, and is called the *Red Red-ſtreak*; another there is that is more pleaſing to the Palate than the former.

The

The *Redſtreak* is to be preferred for your Plantation to any other Apple whatſoever, eſpecially remote from your Houſe. Firſt, Becauſe it yields the beſt of *Britiſh* Drinks. Secondly, Becauſe the Fruit is harſh and unpleaſant, not tempting the Palates of lewd Perſons. Thirdly, The Tree thrives in as mean Land as any other Apple whatſoever, being a ſpontaneous Plant at firſt. Fourthly, It's a conſtant Bearer, being a *Wilding*, enduring (more than the greater part of other Fruit) the ſeverity of the ſharp Springs, ſometimes deſtructive to thoſe that are more tender. Fifthly, The Tree bears in a few years after its grafting, recompencing betimes the Induſtry and Coſt of the Planter; the delay whereof in other Fruits, having been a principal Obſtacle to the great Deſign of Planting. Sixthly, The Tree is low and humble, and ſo more of them may be planted in a like quantity of Land, than the taller Trees, which ſhade the Ground more. Seventhly, The lowneſs of the Trees prevents the ſharp Winds in the Spring, and the Fruit of them are not ſo apt to be blown off in the Autumn. Eighthly, This Fruit exceeds all other Apples in the Kitchin, for the time they laſt.

But

Golden Pippin.

But it is obſerved, that the *Cider* made of the *Redſtreak* is not in all places alike, although it be a curious Liquor in moſt Places, excelling moſt *Ciders*. Yet in ſome Lands other *Apples* may make a better *Cider*: As the *Golden Pippin* being a delicate Apple, yields a Juice in many places exceeding the *Redſtreak*: So that if your Land be rich, inclining to the Pippin Fruit, the Golden Pippin will very well deſerve a place in your Plantation, being a very great Bearer, and the Fruit one of the beſt for the *Table* as well as the *Mill*.

Weſtbury Apple.

There is another ſort of Apple, which doubtleſs is one of the moſt natural *Britiſh* Fruits we have: It's very probable it is in many places in this Iſle; but in *Hampſhire* near *Petersfield*, known by the name of the *Weſtbury Apple*, ſo called from the *Villa* where the old Trees ſtood that yielded the Graffs to its Neighbours. It is a fair green and dark-coloured Fruit, having on the ſunny ſide of them ſome red ſtripes, the Rind or Pill exceeding tough, the Fleſh ſpongy, and not inclining to rot, although rudely handled, if the Fruit hang long enough on the Trees until they are ripe, which will be with the lateſt. This Fruit is not to be eaten, by reaſon of its tough,

tough, rough, and auſtere ſubſtance and taſte, until *Chriſtmas*; they may be kept until *Midſummer* following, and are to be preferr'd for any Culinary uſes. The Trees are great Bearers, and thrive in any cold and moiſt Land, and it's probable in barren Land, it being a natural Fruit to this County, and endures all Weathers. For which properties of being hardy, unpalatable whilſt on the Trees, (a worſe Apple then being not to be found) well-bearing, durable, and uſeful, the more ingenuous Neighbours have increaſed them. Of which Fruit hath been made *Cider* far excelling any *Redſtreak* that could be there obtained, and it's probable may exceed any other *Ciders*, ſo that the Fruit be not ground until *December* at ſooneſt, about which time the ſtrong Fibres that are diſperſt throughout the ſubſtance of the Fruit are weakned, whereby its toughneſs and roughneſs is abated, and its Juice more eaſily ſeparable from the *Murc*, and more maturated by being ſo long contain'd within its thick Coat. For theſe hard, durable, rough, and ſharp Fruits make the worſt *Cider*, if ground from the Trees, or ſoon after, and the beſt when they have been kept until time hath throughly digeſted their Juice.

The

Deux-ans, or John-Apples.

The *Deux-an*, ſo called from its long laſting, continuing near two years, is an Apple not much unlike the *Weſtbury* Apple laſt mentioned; for it is a true old *Britiſh* Fruit, agrees with all Soils; and where the *Pippin* Fruits are ſo ſubject to the Canker, that it's labour loſt to plant them, there the *Deux-an* flouriſhes even to exceſs, and its Rind ſo clean that no other Tree is to be compared to it. The Tree is more apt to aſpire than any other Apple-tree; its Branches grow very uniform, and therefore may be planted near one to the other in Rows, but thoſe Rows at a fair diſtance: By which way of planting, fair and beautiful *Avennes* may be made, yielding Fruit as well as Shade. They are great Bearers, and hardy againſt all Winds and Blaſts. The Fruit ſo well known to be hard, ſharp, and unpalatable Fruit from the Tree, that it's freed from the dangers ſweeter Fruit are ſubject unto; they hang very long on the Trees before they are ripe, and then being laid up until *December* or after, and ground, yield a very delicate *Cider*, ſurpaſſing moſt others: And I hope I ſhall hereafter be able to give an account of its improvement by its long keeping: For ſuch ſweet

Juices

Juices preſſed out of ſuch durable Fruit, without all peradventure will be much meliorated by time; but this I find, that it will ſoon ferment, and therefore muſt be drawn off the Lee in a few days.

This Fruit being a common Fruit, and in ſome places but a Hedg-fruit, and yielding but a thin ſowr Juice, being ground from the Tree, hath been of late ſlighted; Newer Fruit, like new Faſhions, taking place and gaining eſteem, when in truth there is ſcarce a better Fruit to be planted than this *Deux-an*, for the beauty of the Tree, and quick growth, wherein it excels, its liking all Grounds, and great bearing, the Fruit enduring all Weathers, long laſting, its moſt pleaſant Liquor that it yields, and I doubt not but therein it will alſo be ſaid to excel, and its various Uſes in the Kitchin, and its preferrence at the Table when moſt other Fruits are paſt.

Others there are alſo that are very excellent for this uſe; as the *Elliot*, the *Stoken-Apple*, ſeveral ſorts of *Muſts* and *Fillets*, *&c.*

Of the third *Claſſis* are *Pippins* and *Permains*, which make a very pleaſant *Cider*: but of all Table-fruit, the *Gilliflower* and the *Marigold-apple* (ſometimes called *Johns Permain*, *Pippins and Permains, &c.*

Permain, the *Kate-apple*, and the *Onion-apple*) are to be preferred, eſpecially mixed, bearing with them the Marks, *viz.* a ſtreaky Coat, of good *Cider-apples*. The *Golden-rennet*, the *Harvey-apple*, and the *Queening*, are very good *Cider-apples*.

The *Marigold* being laid up for ſix or eight Weeks, until it be mellow, and then ground, yield the moſt luſcious and ſaccharine Juice of any Fruit whatever that I have known, which being well kept will doubtleſs prove good *Cider*, when it is at the height of its maturity.

Choice of Pears. There are ſome ſorts of Land on which Apple-trees will not proſper well, and are more apt for the Pear-tree; as the cold, gravelly, clayiſh, wild, and ſtony Land, on which this Tree, eſpecially the more wild ſort of *Pear*, will thrive exceeding well.

The Pear, when it has room enough to ſpread,
Where it has warmth ſufficient over head,
If it be ſeconded by the wet ground,
With Bloſſoms, and ſwelling Fruits will be crown'd.

Perry being near of kin, for its excellency, to *Cider*, and the *Pear-tree* far exceeding

ceeding the *Apple-tree* for its greatneſs and fruitfulneſs; there having been one very lately, not far from *Roſs* in *Herefordſhire*, that was as wide in the Circumference as three Men could encompaſs with their extended Arms, and of ſo large a Head that the Fruit of it yielded ſeven Hogſheads of *Perry* in one Year, as I was credibly informed.

The *Choakie Pears* of *Worceſterſhire* and thoſe adjacent Parts, or the *Horſe-pear*, and *Bareland-pear*, and *Bosbury-pear*, are eſteemed the beſt for the Preſs, bearing almoſt their weight of excellent Liquor. The more coloured any *Pear* is, the better.

Plums are not to be rejected from our Plantations of Wine-yielding Fruits, it being preſumed, that by a right ordering they may yield one of the beſt Drinks, eſpecially the *Damſon*; any of them being eaſily propagated, and bear well. *Plums.*

In a good mellow Soil, ſcarce any Tree will yield more of Fruit, than the *Flanders-Cherry-tree*, and that Fruit alſo plenty of a brisk Vinous Liquor; which well prepared, is worthy of your eſteem. *Cherries.*

There is great variety of this Fruit, according to which may alſo the like variety of curious Liquors be made.

Of

Gooſeberries, Currants, Rasberries.

Of *Gooſeberries*, *Currants*, and *Rasberries*, there is but little variety, the faireſt of either being to be preferr'd, yielding the beſt Juices, and bearing the greateſt quantities of Fruit.

SECT. III.

Of Grafting.

How to chuſe Grafts.

Having reſolved on your Fruit, you muſt ſelect your Grafts of ſuch Trees that are to be grafted from the beſt bearing Trees, and from ſuch Boughs or Sprigs that are moſt apt to bear; and, as a *Virtuoſo* well obſerved, from the Tree, the Spring before its bearing Year, if it be a Tree that (as many uſually do) bears every other Year.

As for the ſize, let them be but ſhort, with two or three Eyes or Buds at moſt, and thoſe the nearer together, the better. Grafts are uſually cut a little below the Knot or Joint of the laſt Years growth, becauſe the Wood is there hard, and the Rind thick, to ſhoulder well on the Stock; but the ſmalleſt Top will grow, though of the laſt Years growth only: yet the Grafts of two or three Years growth cut ſhort (and the Buds that are likely to bloſſom broken off) are beſt on large and well-rooted

rooted Stocks, where they make the beſt ſhoots, and are not ſo eaſily ſubject to the inconveniencies of the more ſlender.

When once the Leaf is wholly off, and before the Tree begins again to bud, Grafts then cut, may be kept until the Spring or Grafting-time, the ends being ſtuck in the Ground, and tranſported or carried to any remote Place: If the ends be ſtuck in Clay, or in a Turnip, or they bound up in green Moſs, or being wrapped in oyl'd or Waxen Leather, the intent being to keep them cool, and from the exſiccating winds: for in froſty and windy Weather, Trees taken up and not yet planted, being laid in a Cellar, or ſuch-like place, are preſerved, when otherwiſe expoſed to the Wind, though much more cold, are deſtroyed. *To keep Grafts.*

Although you may graft and inoculate almoſt at any time of the year, either by beginning early in the Autumn, and by preſerving them from the cold, or by keeping your Grafts cut and ſtuck in the Ground in the ſhade, to impede their growth in the Spring, and ſo graft them on the ſappy Stocks, or by budding in Summer; yet the principal times for grafting are the Months of *January* and *February*, for *Cherries*, *Pears*, *Plums*, and for- *Time for Grafting.*

ward Fruits; and *March* for *Apples*. A mild open Weather is beſt, and moſt propitious for this work; which if that invite, it is not good to ſtay for worſe.

Yet obſerve, that a Graft ſometimes before cut and ſtuck in the Ground, and then grafted at the riſing of the Sap, takes better than thoſe that are grafted ſo ſoon as cut.

The reaſon alledged is, becauſe the Graff being ſeparated from the Tree from whence it had its nouriſhment, and having for ſome time waſted its Sap, when it comes to a freſh ſupply, more greedily attracts it than if it had never been expoſed to ſuch an expence. Which amongſt many others is a very good Argument, that all Vegetables, as well Trees that ſhed their Leaves in the Winter as others, require and have a continual ſupply and aſcent of Sap after the Leaf is fallen throughout the whole Winter (except it be whilſt extream Froſts check its motion) to maintain them in their viridity and vegetable Life: As appears by the ſwelling of Buds of many Trees in the midſt of Winter, &c. The deſcent of Sap in Trees being only a vulgar Error.

But the more general riſing of the Sap here, is upon the approaching of the *Sun* into

into our Northern *Hemiſphere*, opening the Pores of the Earth, and which by its vital and attractive heat and influence, diſſolves the Bonds of that Spirit of the World that flows into all Vegetables, and from them into Animals, to the maintaining of that Univerſal Harmony that is in the Proceſſes of Nature.

Manner of Grafting.

Several ways, in ſeveral Ages, have been found out for the grafting of one Species of Trees into another, for its melioration; no Hiſtory mentioning its firſt diſcovery, although it has been long practiſed.

Virgil.

Et ſæpe alterius ramos impunè videmus
Vertere in alterius, mutatamq; inſita mala.

And oft without imparing we may ſee
The Boughs of one graff'd in another Tree.

The moſt common, and, as may be ſuppoſed, the moſt antient way, is the grafting in the Stock; and that is, either by cleaving the Stock, or grafting in the Rind, or by Whip-grafting.

In the Cleft.

Grafting in the Cleft, is to cut off the Stock at a ſmooth Place at the height you intend; and if the Stock be ſmall, from one to three Inches Diameter, then cleave

it, that the ſlit may be on the ſmootheſt ſide of the Stock; and fit your Graff, ſhouldering it at a Joint or Bud, joyning the inſide of the Rinds exactly.

The inconveniencies this manner of Grafting is ſubject unto, is, that the Stock being ſlit, the Rain is apt to get in and decay the Stock, and ſometime the Graff withal: Therefore caution muſt be uſed, not only the firſt year, but until the Head of the Stock be covered to defend it from wet by good luteing of it, or by Wax which is the beſt.

In the Rind. But if the Stock exceed three Inches diameter, or thereabouts, the beſt way is to graft in the Rind or Bark, which is done with a Wedge made of Ivory, Box, or other hard Wood, made of a flat half-round Form, tapering to a Point; and force the ſame in between the Rind and the Stock, until you have made the Paſſage wide enough for the Graft, the end whereof muſt be cut after the ſame Form with the Rind peel'd off, preſerving on as much of the inner Rind as you can, and making the Graft to ſhoulder well on the Stock. Thus may you ſet many Grafts round the Stock; and the more there are, the ſooner will they cover the Stock.

This

This manner of Grafting in the Rind hath alſo its inconvenience. For the Graffs uſually make large Shoots the firſt year, which in caſe the Wind happen to blow ſtrongly on the oppoſite ſide of the Stock to where the Graff is, commonly it is broken off, having as yet no other hold than in the Rind, and being top heavy withal, is eaſily broken; to prevent which you muſt nip off the Shoot with your Nails, that it aſpire not too high, and abate ſome of the broader Leaves, which like Sails to a Ship, give the Wind an advantage; by which means the Graff will be more ſtubborn and able to reſiſt the Wind, and the next years Shoots will ſpread the better. And then the danger will not be ſo great, becauſe that which grows ſo plentifully at the joyning of the Graff and Stock this year, being but ſappy Rind, the next will be Wood.

Whip-grafting.

If the Stock be under an Inch in diameter, then the beſt way is to whip on the Grafts; that is to ſay, if the Stock be bigger than the Graft, then cut the Stock off at the ſmootheſt Place, and a little ſloping. Some place the Graff to the upper ſide of the Slope, and ſome to the lower, which is the better way, that the Rind or Bark may cover the ſooner: on which ſide ſoever it

be, the Rind muſt be pared away, beginning eaſily, and ſo deeper upwards until you cut to the Wood at the top; then pare the end of the Graft accordingly, leaving it with a full and broad Shoulder to reſt on the top of the Stock, and fit it aptly to the Stock, and bind it on with Hemp, Yarn, Baſſe, or ſuch like: but if the Graft and Stock be near of a ſize, then cut the Graft aſlope, and the end of the Stock likewiſe, and bind them together Rind to Rind.

This is the beſt way of Grafting, the inconveniencies that attend both the other, here being prevented. For in this the Graff ſoon covers the Stock which is not impaired by ſlitting, and the Graff having its Wood as well as its Rind bound to the Stock, is not ſo apt to break off, as that which is Graffed only in the Rind, nor is the Graff apt to be top heavy, the Stock being ſmaller affording not ſo plentiful nouriſhment. For where the Sap flows moſt liberally the Wood is moſt ſoft, and where more thinly, there the Wood is harder and beſt able to bear the ſhock.

By approach. If the Tree and Stock ſtand near together, they may be united, by paring away the Rind of both, and binding them together until they are perfectly joyned; then

may

may you cut away the Branch that formerly led to the Graft, and leave it to extract its nouriſhment from the Stock.

When your Grafts are placed as they ought in their Stocks, then muſt you apply good Lute or Clay mixed with new Horſe-dung (without the Straw) and well tempered, to prevent chapping; which preſerves the Heads of the Stocks moiſt, that the Rind or Bark may cover them the ſooner; and defends them from the extremities of cold, wet, and drought: but if the Stocks be ſmall, a little Soft-wax well emplaiſtered on them, is eaſier done, and preſerves them better than the other. Always remember to cut the Ligaments off thoſe Grafts you whipt on, about *Midſummer* following. *Luting of Grafts.*

If you uſe Wax in Luting your Grafts, take of that ſort of Soft-wax that is above a year old, and hardned in keeping, that it may not wax ſoft by the heat of the Sun, as new ſoft Wax is apt to do. For then the *Bees* will, by little and little, deprive your Graffs of their defence; but to make your Wax fit for your purpoſe, put it in a Baſon of warm Water, and ſo from Stock to Stock take it out as you need it, applying it immediately whilſt it is warm, you may al-

ſo with a moderately hot Iron ſere the edges and cloſures of the Wax, to prevent the inſinuating moiſture from getting in.

New manner of grafting.

Some of late have attempted to raiſe Nurſeries or Plantations, by whipping the Graff to a piece of a Root of a Tree of the ſame Species, and ſo to plant it in the Ground, a little lower than the grafting Place, that the Earth may cover the wound, that the Root may feed the Graff, as the Stock doth in the former ways. Thus with the Root of one *Crab-tree* cut in pieces, may you raiſe twenty or thirty *Apple-trees.* And thus may you unite the Graft to a Stock of a different kind, whereby new Fruits may be produced, and the old meliorated; the wound being within the Ground, and not obvious to the extreams of the Weather. This only is objected, that the Tree grows but ſlowly, moſt affecting expedition in theſe Affairs.

For it cannot be expected that a piece of a Root, newly planted, ſhould ſo readily attract Sap as that which hath been fixed before in the Ground: and if it doth not, how then can it afford plentiful nouriſhment to a Graff, which is required in the uniting of the Graff to the Stock? for in ſouldring of wounds, more radical moiſture

ſture is required than in an ordinary preſervative Circulation. And in this caſe you have a threefold want of ſap or nouriſhment, the one occaſioned by the remove of the Root: For every Plant that hath a Fibrous or branched Root, being removed, although the whole Root be preſerved entire, yet demonſtrateth a ſenſible defect of Sap at the firſt, until the Earth be well ſettled about it: Therefore planting in liquid Earth, like Pap, is to be commended. The next want is cauſed by wounding the Root, for a wound in the Root doth abate the vital Sap of the Root and Tree as well as a wound in the Branch: For although there be no deſcent of Sap in Trees; yet the Roots or Trunks of a Tree being cut, the Sap or Spirit of the Tree will expend it ſelf by a retrograde as well as by a direct Motion; therefore the Root muſt be ſometime in the Ground before its wound be healed, and new Fibres emitted to obtain a recruit of Sap. The laſt defect is of a ready ſupply to unite the Stock and Graff, which we may perceive is ſoon done, where the Stock hath been fixed before the Graffing, yielding plentiful Sap; when in other caſes where the Stock is but newly planted, the Graff hath been ſtarved

ved for want of nouriſhment, and rarely makes a fair Tree, unleſs it agree very well with the Soil. And therefore, whatever ſome pretend, this way of Grafting in the Root is not to be commended for this purpoſe.

Inoculation. Several ſorts of Fruits are beſt inoculated, and ſome indifferent either way, as *Cherries*, *Plums*, &c. The time for this work, is from the middle of *June*, to the middle of *Auguſt*, as the ſeaſon of the year is either forward or late.

The Buds you are to chooſe from Shoots of the ſame years growth; which if by carriage in the Air, or otherwiſe, they are a little withered, you may revive them by ſetting them in Water, which will make the Buds come the cleaner from the Wood.

To prepare the Stock, take the cleaneſt part of the Stock, and cut the Rind athwart, and from the middle thereof ſlit down the Rind near an Inch in length, that both cuts may reſemble a T: then cut off the Sprig out of which you take your Bud a little above it, and about half an Inch below it, and ſlit the ſhort Piece of the Sprig in your hand in the midſt, leaving the Bud on one ſide; then with your Quill in form of a Goudge, beginning above the Bud

Bud, divide the Rind from the remaining Piece of the Sprig, ſo that the Bud be firm in the Rind; which take, holding it by the Piece of the Stalk of the Leaf which is left uncut off; and after you have opened the place in the Stock, by dividing the Rind from the Wood gently, and not too deep, place in the Bud, and cloſe the Rind of it to the Rind above, and the two Lappets of the Rind of the Stock over the Rind of the Bud, and bind it over with Woollen-Yarn. Then about a Month after, obſerve whether the Bud (over which the Yarn was not to go) be green or not: if it be, then unbind it, and the next Spring cut off the Stock about an Inch above the Bud.

Alſo the ſlit may be made upwards, and ſo the Rind at the bottom of the Scutcheon or Bud fitted to the Rind of the Stock below, inſtead of that above: And it may be perform'd by cutting a ſquare place in the Stock, and fitting into it a ſquare Scutcheon with the Bud in it, and binding it cloſe.

By Laye. or Slips.

Some ſorts of Fruits may be propagated by Layers or Slips, as the *Codling*, the *Gennet-Moil*, and the *Creeping Apple*: the *Vine*, *Currant*, and *Gooſeberry*, are alſo propagated by either of theſe ways.

Several

By Kernels. Several new and good Species of Fruits have been raiſed by Kernels: but for expedition, certainty, and advantage, the other are the better ways.

SECT. IV.

Of tranſplanting Trees.

Tranſplanting Trees. Having raiſed your Nurſery, or otherwiſe provided your ſelf of a competent number of Trees, and ſelected your Ground whereon you intend to plant them; conſider how to diſpoſe of the Trees to your beſt advantage: that is, to plant your tall Standard-Trees in ſuch places where you intend to make uſe of the Land for Graſing, that they may be above the reach of Cattel. But in ſuch places where you can diſpence with the abſence of Cattel, and uſe the Land only for the Sythe or Spade, there it is beſt to plant dwarf or low-grafted Trees, for ſeveral Reaſons. 1. You may plant more of them on the like quantity of Land, becauſe the Shadow of the one Tree doth not reach the ground of the other, as that of the tall Trees doth. 2. The low Trees ſooner attain to be Fruit-bearing Trees, and grow fairer than the tall; the Sap in them waſting in its long paſſage,

paſſage, which in the ſhorter Trees expends it ſelf ſoon in the Branches. 3. The lower and broad ſpreading Tree is the greater bearer, by reaſon the Bloſſoms in the Spring are not ſo obvious to the bitter blaſts, nor the Fruit in the Autumn to the fierce and deſtructive Winds. 4. Fruits are more eaſily gathered from a low than a tall Tree, beating or ſhaking down Fruit from ſuch Trees, being to be rejected by all judicious Ciderists. 5. Any Fruit on a low well-ſpread Tree, is better and fairer than that on a tall Tree, by the ſame reaſon that the Tree is fairer, that is, that the Sap is not ſo much waſted in the low and humble Tree, as in the tall and lofty.

This way of planting dwarf-Trees is but lately in uſe, deriving its original from *France*, whence the Poet adviſes,

In open Plains on which the warm Sun lies,
There let your Trees aſpire. In Grounds inclos'd,
Let a Dwarf-race of Fruit-trees be diſpos'd,
Whoſe Boughs are round and ſhort: not Bodies tall.

Let not any one think it a diſparagement to our Nation, to imitate the excellencies

lencies of any other, nor think that our Forefathers were ſo wiſe, as to know all things; every Race of Mankind, and every Age endeavouring to improve the Actions of the former, do aſſuredly diſcover ſomething better than what was before; or at leaſt bring into practiſe that which before they concealed. The ſame Poet adviſes you to

Follow theſe precepts rather much, then thoſe
Which our own Antient Husbandmen impoſe.
The former age muſt all its claims reſign,
Now all theſe Arts in perfect luſtre ſhine.

Yet is there caution to be uſed in the raiſing of Fruit-trees from Dwarfs. For if you let them ſpread too much near the Ground, thoſe under Branches rob the upper of their nouriſhment, and make them incline to the Canker: Therefore yearly take away thoſe leſſer over-dripped Sprigs or Branches, that the other maſter Boughs may proſper the better; preventing nevertheleſs their too high aſpiring, by topping the upper ſhoots.

Time for planting Trees. Although you may remove a Tree any time of the year, and yet ſo that it may grow:

grow: Yet if you deſign to remove your Trees that they may proſper well, and that you may chooſe your time; the moſt proper Seaſon is at the fall of the Leaf, or when you perceive that the Sap doth no longer ſenſibly aſcend, ſo as to afford nouriſhment to the Leaf; which is uſually about the end of *September*: and ſo you may continue removing all the Month of *October*, and the beginning of *November*, before the more cold Weather prevents you: yet if the Weather be open, you may remove till the Trees begin to Bud.

Obſervations in tranſplanting.

Before you take up the Tree, it is good, with a Making-Stone, or piece of Chalk, or ſuck-like, to mark one coaſt of every Tree, either *Eaſt*, *Weſt*, *North*, or *South*, as you pleaſe; that when you plant them again, you may remember to plant that marked ſide to the ſame Coaſt it tended unto before: which was antiently adviſed by *Virgil*,

Quinetiam Cœli regionem in cortice ſignant;
Ut quo quæque modo ſteterit, quâ parte calores
Auſtrinos tulerit; quæ terga obverterit axi,
Reſtituant.

Alſo

Alſo Heavens quarters on the Bark they ſcore,
That they may Coaſt it as it was before,
Which Southern *heat ſuſteyn'd which view'd the Pole.*

And doubtleſs is very neceſſary in Trees that are large; the ſmaller, or ſuch that have grown in cloſe Nurſeries, being not capable of any conſiderable alteration from any Aſpect of the Heavens.

Here alſo note, That in caſe a Tree, as it ſtands before removal, hath the benefit of the *Eaſt* or *Weſt* Sun more than of the *South*; then where you plant that Tree give that ſide, that before had that advantage, the like again in its new place: which although it varies from the former poſitive directions, yet not from the reaſon of it.

Fœlix qui potuit rerum cognoſcere cauſas.

Having thus marked your Trees, take them up with as large Roots as you can, eſpecially the ſpreading Roots. Therefore it is beſt to keep the Spade from coming too near the Tree: and when you have ſurrounded the Tree at a good diſtance, endeavour to raiſe as much Earth as you can with the Tree; but if it be to carry far, ſhake it off.

In

In the planting of your Trees, abate the down-right Roots, leaving thoſe that ſpread: for it is obſerved, that the more the Root ſpreads, the more the Branches; tall Trees uſually extending their Roots deepeſt, as *Virgil* obſerved of the *Æſculus*,

——— *quæ quantum vertice ad auras*
Ætherias, tantum radice in Tartara tendit.

How much to Heav'n her ſpreading Branches ſhoot,
So much towards Hell extends her fixed Root.

Of thoſe Roots you leave, prune only the ends by cutting them like unto a Hinds foot on the under-ſide, they will put forth new Roots the better.

In caſe Trees have lain ſome time out of the ground, or been carried in the Wind that their Roots ſeem to be dry, ſet them over-night in Water, immerging only the Roots, and it will very much revive them. Or when you plant them, after you have added an indifferent quantity of Earth, caſt in a Pail or more of Water, as the largeneſs of the Foſs requires; which not only quickens the Root, but makes the Earth

adhere to the Roots, which otherwiſe would lie light and hollow about them: the Air much incommoding the Root of any Plant whatever.

According to the Nature of the Ground or depth of the Mold, ſo make your hole more or leſs deep, wherein you plant your Tree: if it be a cold or ſpringy Ground, then plant near the ſurface of it, and raiſe the Earth at ſome diſtance round the Tree; but in any Ground, plant not too deep: for you may obſerve in many Plantations, Trees thrive beſt where the Roots run near the ſurface, and not at all where planted deep. The Roots of themſelves naturally tending either wide or deep, as they find nutriment, although you plant them ſhallow; but if you plant them deep, it's againſt the nature of Roots to tend upwards, although ſometimes it may ſo happen, but rarely.

It is good to dig the hole or foſs deep and wide, and to fill the bottom with good Mold, either the Turf or paring of Land, or well-tempered Street-dirt, or the ſediment of haſty Currents that ſettle in bottoms of Pools or Ditches, or rotten Vegetables, or burnt Earth, or any thing that will either mend or alter the Ground, and that is proper for your Trees: fill it to ſuch a convenient

nient height, that you may plant your Tree on the top of it; and then add good Mold about the Root, and dilute it with Water, as before is directed. Then level the Earth about the Tree, ſo that it may not be too high to injure its Bark, and ſo that the Water may rather fall towards, than from the Tree.

After you have placed your Tree to your Mind, and covered the Roots with good natural Mold, then take a Wheel-barrow full or two of Street dirt, or dirt tempered by the trampling of Cattel, more eſpecially of Hogs, and cover the looſe ground about the Tree, and pat it ſmooth with the back of your Spade plaſter like inclining towards the Tree; this may be laid two or three Inches thick, and in breadth two or three Foot round from the Tree, by which means the looſe Earth will be preſerved moiſt, and the Weeds prevented from too ſudden a growth. This Coat being in imitation of broad Stone or Planck which, laid round about a newly planted Tree, adds much to its thriving.

If you plant Standards, and in an open place, it is convenient to ſtake them the firſt year, ſo that you be careful to prevent galling them, by interpoſing a ſmall Wiſp of

Hay between the Tree and ſtake, and planting the ſtake leaning towards the Coaſt you expect the greateſt Winds: but the continuing the Stakes for ſeveral years, ruins many a good Tree, for the Tree will expect it always after; which weakneſs in a Tree may be remedied by lopping of it, and then let it ſtand without ſtaking, and it will gather greater ſtrength in the Ground than before.

Prune the Heads of ſome ſorts of Trees that have but ſmall Pith, as *Apple-trees*, *Pear-trees*, &c. when you remove them, to proportion the Branch and Root as near as you can: but *Wallnut-trees*, *Cherry-trees*, *Plum-trees*, &c. that have a large Pith, are not to be topp'd, only ſome of the Side-branches may be taken away.

Plant all Trees as near as you can into a better Mold than the place you remove them from; but if you cannot obſerve this, yet mend the Earth in the Foſs wherein you plant your Tree, that it may by degrees be inured to a worſe Soil.

If you have a deſire to remove a Tree in the Summer-time, that you cannot obtain at any other more convenient Seaſon, take of the Earth you digged out of the Foſs you intend to plant your Tree in, and mix

mix and temper it well with an equal part of Cow-dung, and as much Water as will make it into a liquid Pap; fill the Hole almoſt with this, and then let the Root of the Tree gently ſink into it; cover it over with dry Earth or Turf: This Tree will proſper very well.

This is a good way to plant a Tree at other times withal, but then you need not uſe ſo much Cow-dung.

As for the diſtance of Trees, it ought to be according to the nature of the Tree and Soil. If it be a large ſpreading Tree, and a rich Soil, Forty Foot is a good diſtance; if a *Redſtreak*, or ſuch like dwarfiſh ſhort-liv'd Tree, Twenty Foot is enough between them, eſpecially if the Ground be but indifferent.

Always obſerve, that the greater the diſtance, the better the Sun meliorates the Fruit; and if the ground be good, the better do the Trees thrive; and the poorer or drier the Ground is, the Trees being thick, the better they ſhadow it, and the more do the Trees proſper.

If you deſign a Plantation of many ſorts of Fruits in one Plot, then may you plant your *Apples* and *Pears* the farther apart; and between them, or in ſubordinate rows

by them, may you plant *Cherry-trees*, *Plum-trees*, and ſuch like; and next unto them *Filberds*, *Currants*, *Gooſeberries*, &c. ſo that if ever the greater Trees ſpread far, by that time the leſſer may be decayed: if thoſe do not, theſe may be renewed that no part of the Plot may be fruitleſs.

In caſe any Tree happen to decay, having ſtood long in that Place, ſo that its Roots have attracted and exhauſted the ſtrength of the Earth appropriate to that Species of Fruit; In the room of ſuch Trees remember to plant one of another Species, as an *Apple-tree* in the room of a decayed *Cherry*, *& ſic de cæteris*; by which means the Roots of the latter Tree ſhall find new matter to maintain their Plant, that was not exhauſted by the former; moſt Land being weary in time of one Plant.

Of pruning Trees.

After your Trees are planted, if you deſign them for dwarf or ſpreading Trees, then as they ſpring, and are apt to mount upwards, with the Nails of your Fingers may you nip off the tops of the aſpiring Branches; which makes the ſide-boughs ſpread the better, checks the Sap, and thereby cauſes the Tree to Fructifie the ſooner, and the better. This way of pruning

ning in the Summer, is eaſier and better for the Tree than in the Winter, becauſe the Sun heals the wound whiles the Branch is tender.

In pruning Fruit-trees, be cautious of cutting off the ſmall Sprigs, which are the more apt to bear Fruit; it being too uſual for ignorant Planters to beautifie their Trees, by taking off theſe ſuperfluous Branches, as they term them, whereby they deprive themſelves of the Fruit.

After your Trees are planted and pruned, it's good to keep the Ground open about them, by digging or plowing it yearly, which conduceth much to the advancement of the growth of them, and their preſervation from Moſs and other Diſeaſes.

Culture mends bitter Plants; they then who break
The ſurface oftneſt up; who moſt their Rake
And forked Tools about the Roots employ;
They, the beſt Fruits, and nobleſt Trees enjoy.

This is a Winter-work: anſwerable unto that, in the Summer may you ſpread Fearn or other Vegetables about them, eſpecially whilſt they are young; it preſerves their Roots cool and moiſt: both

which ought to be done at a good diſtance from the Trunk; it being a vulgar errour to dig or ſoil near the Tree only, the former being of little effect, the latter injuring the Bark; for the Roots that gather nouriſhment, and feed the Tree, are thoſe that are fibrous and remote; ſeeking new and freſh nouriſhment, the greater being only for conveyance of it to the Trunk.

Swine which are pernitious to all Gardens, yet are profitable in an Orchard. Therefore after your Trees have gained ſtrength enough to bear the rubbing of theſe Cattel, you may keep your *Swine* in your Orchard all the Winter ſeaſon unring'd, by which means your Orchard will not only be throughly digg'd, but enriched by the Excrements of thoſe diggers: in the Spring you may level it over again, which will exceedingly conduce to the fertility of your Plantation.

Thus *Swine*, which never were accounted uſeful whilſt alive, may now become the beſt improvers of your Orchards: repine not at the loſs of your Graſs, that will not be ſo much prejudiced as your Fruit meliorated.

SECT.

SECT. V.

Of the Propagating the Vine.

Altera frumentis quoniam favet, altera Bacho; Virgil.
Denſa magis Cereri, *rariſſima quæq;* Lyæo.

Since one Corn beſt affects, the other Vines;
To Ceres *ſad, to* Bacchus *thin inclines.*

A rich light ſandy Ground agrees beſt with this noble Plant: if the bottom be Chalk or Gravel about two foot under, it's not the worſe; if it incline much to Brambles, it will be kind for the Vine, the flouriſhing of that Plant being a true mark of the aptneſs of the Ground for this. The richneſs of the Soil is not ſo much to be deſired, as the heat and drineſs of it; for a ſhort Vine, and full of Knots or Joints, is moſt proliſick, and fitteſt for our Climate. *Soil for the Vine.*

Bacchus *loves the Sunny Hills*, ſays *Virgil.* The declivity of a Hill towards the *South* is much to be preferred to a Level; a little to the *Eaſt* or *Weſt* is not bad: if it be defended by Hills on the *North* and *North-Eaſt* Coaſts, from the ſeverity of thoſe Winds, *Situation of the Vineyard.*

Winds, it will much add to the early maturity of your *Grapes*. Alſo, a lofty Situation is not ſo much infeſted with Miſts, Fogs, and cold Dews, noxious to the *Grape*, as are the lower Grounds; and enjoyeth more of the benefit of the Sun, and is drier; which is very advantageous in maturating this Fruit, not at all affecting moiſture.

Preparation of the Ground for the Vine. The Ground being Turfie, and having not been lately broken up, may be burnbeat in *June* or *July*, which will much inrich and lighten the Land; as is now practiſed in remote Countries, and was in former Ages, elſe *Virgil*, as to barren Land, would not have ſaid,

——*Sæpe etiam ſteriles incendere profuit agros,*
Atque levem ſtipulam crepitantibus urere flammis.

To burn dry Stubble, and the barren Fields,
In crackling Flames, oft handſome Profit yields.

Then in *December* or *January* trench in the Aſhes of your burnt Land, which may be ſpread in the beginning of the Winter, before

before any great Rains come, leſt they waſh in the Salt or richneſs of them into the Ground only under or near the heaps, and ſo make the Ground unequally fruitful.

Be ſure to make your Ranges from *Eaſt* to *Weſt*; for the Sun will the better ſhine in between the Plants in the former and latter part of the day, and at Noon in the Summer-time the Sun will ſhine over the Ranges; ſo that they will enjoy the benefit of the Sun all the day by this means.

Sorts of Vines.

Having thus prepared your Ground, make choice of the beſt ſorts of *Grapes* that are moſt ſuitable to this Country, of which the early *White Muſcadine* is eſteemed the beſt; but there are ſeveral other ſorts; as the *Parſley-grape*, which is early ripe, the *Muſcadella*, a white Grape not ſo big as the *Muſcadine*, and the ſmall black Grape, by ſome called the *Cluſter-grape*, by others the *Currant-grape*. Alſo there is a *New white Grape* ripe before any of theſe, which grows in His Majeſties Garden at St. *James*'s, which Mr. *John Roſe* highly commends for a Vineyard.

The *Frontiniac* Grapes, eſpecially the white, are late ripe, but in hot years yield a moſt delicate Fruit, fit to add a flavour to the

the Wines of other; they are great bearers, and yield fair fruit.

Choice of Sets. Any Cuttings almoſt of the Vine will grow in a cool moiſt Ground; therefore it is good to raiſe a Stock of them beforehand, againſt the time you plant your Vineyard. Alſo cuttings of Vines that have a little of the old Wood on them, will eaſily grow where you intend to place them for good; but Layers are the moſt certain.

The manner of planting them. Mark your Ranges, that they may be about three Foot diſtance the one from the other, and dig a Trench for every Range about a Foot wide, and a Foot deep, clean in the bottom, and upright on the ſides; Then fit your Plants, Layers or Sets of Vines, ſo that you leave not above two or three Eyes of the young Wood upon them; Then Plant them about two Foot apart in the bottom of the Trenches, ſo that the Roots lie acroſs the Trenches; then cover them three or four Inches with the Mold, that the top of the Sets may be even with the edge of the Trench: then cover the Plants all along in the Trenches with Litter or Stubble of a reaſonable thickneſs, to preſerve them from dry and piercing Winds, and from parching Heat; all

all which are injurious to them the firſt year of their planting: be ſure to leave the tops of the Plants uncovered.

To Dreſs, Prune, and Govern the Vineyard.

After they are thus planted, they require your care in *Hawing* them conſtantly, to prevent the Weeds from feeding; and to raiſe the looſe Earth about your young Plants by little and little, as you paſs by them.

The firſt Pruning is to be in *December* or *January* next after your planting; at which time you muſt cut off all the young Shoots cloſe to the old Set, except only one, which you muſt leave, and which ſhould alſo be the ſtrongeſt and moſt likely to proſper; and to that likewiſe ſhould you leave but two or three Knots or Joints.

In *May* following, when the Vine Buds, then rub off all the young Shoots or Suckers, ſave only ſuch that come forth of the Joints of the young Wood you left in *January*; and continue your *Hawing*, to preſerve your Vineyard free from Weeds, adding ſtill freſh Earth to your Plants as you paſs by them.

In the Winter following, Prune your Vineyard as you did the laſt, leaving ſtill the beſt Branch or Shoot to each Plant, and about three or four Joints or Knots. This

ſecond

ſecond Winter dig your Vineyard, and lay it all level, being careful that you touch not any of the main Roots of your Vines with your Spade.

Propping of Vines. In this third Summer, your Vines will begin to bear; to which end you muſt provide Props of *Hazel*, *Aſh*, or *Oak*, about four Foot in length, placed behind your Plant.

In *May* rub off all the Suckers, leaving only ſuch as proceed from the Knots of the laſt year, and that are likely to bear Fruit. Then thoſe Shoots that come from thoſe Knots, bind to your Props; and when the Fruit is of about the ſize of *Raddiſh*-Seed, nip off the Branches about a ſpan above it with your Fingers, which is much better than to cut them. And in the heat of the day, for then their wounds will the ſooner heal.

The fourth year obſerve the ſame method, for then may you expect the compleat fruit of your labour; remembring that in every Winter you leave but one, and that the ſtrongeſt ſhoot or Branch for a Standard, and not above Four or five Foot high, cutting all the reſt cloſe, unleſs you find any that are very ſtrong, to which you may leave three or four Knots or Joints,

Joints, that the Branches that proceed from them (at leaſt the ſtrongeſt) may ſerve for Standards for the enſuing year. So that the Exchange of old for new Shoots, may very much advance the encreaſe of your Fruit.

You may bind them with ſmall and tender *Oſiers*, or the Rind of the *Willow*, ſuch as you can moſt eaſily obtain.

In *Auguſt*, when the Grapes begin to ripen, nip off ſuch Shoots and Leaves as too much ſhadow them, yet leaving a thin Skreen of Leaves to preſerve them from the ſcorching Sun, the cold Dews, and the cool Breezes.

Remember yearly to cut off the old, and advance the new Shoots, and to tye them to the Props about half way from the Ground; and then turn the top of your Vine to the next Prop, and tye it to that, and ſo ſucceſſively, which will reſemble a Row of Arches.

Of Manuring or Dunging the Vineyard.

As you find your Ground to degenerate and grow poor, which moſt hot Land is apt to do, you muſt ſupply it with Manure, which muſt be good rotten Dung, and mixt with Lime if you can, laid and ſpread over your Vineyard, that it may lie all the Winter, that the Vertue of it

it may be washed into the Earth, to the Roots of your Vines; and then dig it in the Spring, when you dig your Vineyard; but by no means let not any new Dung come near your Vines, which will too much dry up and burn your Land, and is injurious to all Fruit-bearing Trees, as we before observed: which labours of raising young Branches from the old Roots, and renewing and amending the Mold by stercoration, reiterate and continue for many years.

Of pruning the Vine against a Wall.

Many Persons have opportunities to plant Vines against Walls, Houses, Barns, *&c.* which will not only bear much more of Fruit, but more early ripe, having many advantages above the open Vineyard. For the pruning of which Trees, observe, that on every Sprig you cut off in your Winter-pruning, where you would have Fruit the succeeding year, you leave two or three Buds: for out of those Buds, especially the second or third, proceeds the Clusters. Also observe to cut off the Branch aslope on one side, or under, that the Rain rest not on the Pith of the remaining part of the Branch; the Rain oftentimes perishing the Pith to the lowermost Bud. And forget not to leave every year some new

Branches

Branches or Shoots, and to cut off ſome of the old: renovation of the Branches being in this Tree very neceſſary, eſpecially if it be old.

If the Vine be cut late, it will be apt to bleed, by which in warm and moiſt weather it loſeth much of its Sap or Blood, although in cold or dry Weather it ſtops, and no great injury to the Tree, it ſtoping of its own accord, the wound of its ſelf healing, when the forwardneſs of the Spring hath thickned the Sap; unleſs ſuch wounds or bruiſes be great, and happen to your Vine about the end of *March*, or in *April*, then they are dangerous: to cure which, if it ſhould ſo happen, you muſt dig at ſome diſtance round the Root of your Vine, with caution not to impair the Root; and caſt in a good quantity of cold Water, which not only checks (by its ſudden coldneſs) the too liberal riſe of the Sap, but plentifully ſupplies the waſt that is made of the Sap or Blood (which the ſpreading Roots with difficulty before had attracted) until the increaſe of the Spring thickens the ſame. *To cure the bleeding of the Vine.*

This Tree is very eaſily propagated, and delights in a good free Land, and will proſper and bear very well, if the Ground un- *Currants.*

der it be kept free from Weeds, and other Vegetables, and ſometimes digg'd.

There is hardly any Tree delights more in the ſhade than this: even under the drips of Trees will it proſper very well. But againſt the North ſide of a Houſe, or other high Wall, it will proſper exceedingly, and aſpire to near fifteen Foot high, and ſpread very broad, being tacked as other Wall-Trees uſually are; and bears very fair and good Fruit, much better than on Standards or in the Sun.

Gooſeberries. Theſe are eaſily propagated, as are the *Currants.*

Rasberries. This Fruit delights in the ſhade; and the colder the ſoil, the better will this Tree thrive and bear in it.

Thus having given you ſome more than ordinary Obſervations and Experiments for the Raiſing, Grafting, Tranſplanting, Pruning, and renewing your Orchards, Plantations, and Vineyards, with theſe ſorts of *Cider* and Wine-Fruit-bearing Trees, we will conclude with a tranſlate of *Rapinus*, a little varied.

From Planting new, and Pruning aged Trees,
The prudent Ancients bid us never ceaſe.

Thus

Thus no decay is in our Vineyards known,
But in their Honour we preſerve our own.
Thus in your Orchards other Plants will riſe,
Which with your Nurſeries will yield ſupplies,
That may again your fading Groves renew:
For Trees, like Men, have their Succeſſions too.

SECT. VI.

Of the Diſeaſes of Fruit-Trees, and their cure.

Vegetables, as well as Animals, have their Diſeaſes and Infirmities, which not only weaken, but totally deſtroy them; which uſually aſſault the Fruit-bearing Trees more than any other: and the finer and better any Fruit is, the more is its Tree ſubject to theſe Diſeaſes and Infirmities; The chief whereof is the *Canker*, which aſſaulteth the beſt Fruit-trees, as of Apples the *Pippin*, *Golden Rennet*, &c. of Pears the *Wardens* of all ſorts, *Burgamet*, &c. *Cherries* and *Apricocks*, penetrating the midſt of the Branches, and ſometimes deſtroying the whole Tree. This Diſeaſe happens from ſeveral cauſes, as from the *The Canker.*

twiſting or bruiſing a Branch or Limb (which uſually happens in Wall-trees, by plying them to the Wall) and ſomewhat reſembles the Windſhake in an Oak; the cure whereof is to cut off ſuch Branch: alſo the galling one Limb againſt another, which you may prevent by pruning, and cure by cutting off the Parts affected. But that Canker is the moſt inveterate and uncurable, that proceeds from the Soil; as either being too rich,

Rapinus. *For as a Tree due nouriſhment may want,*
So too rich Soil deſtroys the tender Plant.

which if you know not how to ſterilize, then obſerve what ſorts of Fruit are free from that Diſeaſe in the Ground, (for all ſorts of Fruit-trees are not ſubject to it in any Ground whatſoever) and propagate them only.

Or by being too light; for Trees planted on heavy or ſad Land, are not ſo prone to this Diſeaſe, as in light and warm Land; which may be corrected by abating much of the Earth about the Roots of the Trees, and applying cold, ſad and heavy dirt or ſettlings in Ponds about them, and more eſpecially Earth much trodden by Swine,

and

and mixt thereby with their Dung and Urine, and by cutting off the cankered Branches. This by Experience hath cured cankered Trees, and may as well prevent the Diſeaſe. Or through defect of nouriſhment. For in caſe there be too many Suckers, or under Sprigs or Branches, they commonly rob the more flouriſhing Limbs of their due Sap; and if the Tree, whilſt young, be too apt to bloſſom and bear Fruit, thoſe extractions of Sap from the Tree uſually produce the Canker.

The raiſing of Stocks from *Crab-kernels* in the ſame Land, and grafting on them, is a good prevention of this Diſeaſe; for this Stock doth better digeſt the ſweet and luſcious Juice that ſometimes cauſes this Diſeaſe, than the ſoft and ſpungy *Apple-ſtock*; to whom alſo the Juice is more homogeneal, than to a ſtranger, removed into it out of a more barren Soil. Vain therefore are all the Cuttings, Parings, Slicings, Emplaſtrings, and Applications that are voluminouſly preſcribed for the cure of this Diſeaſe.

From the Stock uſually ſpring many Suckers, which extract too much nouriſhment from the Tree; which muſt be taken off dextrouſly from the Root, and may *Suckers.*

be prevented by grafting on good Stocks raiſed from Kernels; for Trees proceeding from Suckers, are always ſubject to this Diſeaſe, which the Canker uſually attends.

Bark-bound. If Trees are Bark-bound, it either ſignifies that the Ground is hard and bound about the Roots of them, or that they are planted too deep: The remedy then is known only with this Addition; That you may ſlit the Bark down with your Knife, about the Spring-time.

I have known Trees of my own planting that have been removed from a better, though into a good Soil; and after they have ſtood two or three years with ſmall growth, and ſeemingly Bark-bound, yet when they came to take to the Ground and ſpread their Roots, they made large Shoots, and the Bark of it ſelf ſlit open in many Places, as though it had been ſlit with a Knife, therefore the beſt care is in the Soil and ſhallow planting.

Moſs. Cold, and untill'd, and unmanured Land, oftentimes produce Moſſie Trees; which by digging, or conſtantly applying Vegetables at the Roots of your Fruit-trees, or by keeping Swine in your Orchard, may be prevented. The ſame alſo may, in

ſome

ſome meaſure, be rubb ed off with a Hair-cloth after Rain.

Fruit ſuffers much from Snails, which are to be taken off in moiſt Weather, Mornings and Evenings; but moſt to be deſtroyed in the Winter, by Boards, Tiles, or ſuch like, ſet hollow againſt Walls, Pales, or the Stems of Trees, under which they will reſort for ſhelter; whence you may take them by heaps. *Snails.*

Deſtroy the Webs or breed of Caterpillars in the Spring, and burning them. *Caterpillars.*

Although the Birds deſtroy much Fruit when ripe, and are to be ſcared away and deſtroyed, as every one knows, yet they do not that injury as the Bulfinch doth at the Spring to the Buds of ſeveral ſorts of Trees, as the *Sweet Apple-tree*, all ſorts of *Plums*, *Currants*, &c. which by Birdlime are taken, and your Trees ſecured, or elſe deterr'd by a dry Hawk perching in the midſt of the Tree; or by ſtrowing of Hemp-ſeed on the Ground near the Trees, which will allure the Birds down, where by a Draw-net, or by Shot, you may diſpatch them. Or by making an Artificial Hawk with a piece of Cork, about the breadth of ones Hand: and of the Wing Feathers of Poultry, to fix into it *Birds.*

two Wings and a Tail, that being hang'd aloft by a ſmall Wire of about four Yards in length, fixed in the Head of your Hawk, the other end on the top of a long ſlender Rod or Pole, fixed or ſet up in the middle of the Tree, that the Hawk may be clear of all Boughs: Thus will every breath of Wind, mount your Hawk, which will play in the Air, and make its Stoops, ſo that not a Bird will ſettle on the Tree, under, or near it. This far exceeds all Clacks and other devices to ſcare away the bold Bulfinch, or the other timorous ſmall Birds.

There are many other Diſeaſes and Infirmities incident to Fruit-trees and Fruits, but theſe are the principal and moſt injurious, and moſt difficult to cure.

CHAP.

CHAP V.

Of making Cider *and other Liquors of Apples and other Fruits.*

SECT. I.

Of gathering and preparing Apples, &c.

AFter you have thus brought your Plantation to perfection, that you can gather Fruit enough of your own to make *Cider* or other Liquors, according to the nature of the Fruit; the firſt thing to be conſidered of, is its Maturity; there being much *Cider* ſpoiled in moſt parts of *England*, through that one general errour of gathering of Fruit before its due Maturity. For there is ſcarce any Fruit in the World, but yields very different Liquors, according to the different degrees of Maturity of the ſame Fruit. As the Juice of the *Coco-nut* whilſt green, is a pleaſant thin Drink, but when through ripe, becomes a rich Oyl or Milk: So the Juice of our *European* Fruits which, when moſt mature, yields a pleaſant Drink; if preſſed before, yield but a crude and ſowr Liquor. *Of the ripeneſs of Fruit.*

This

This errour or neglect (occaſioned partly becauſe the ſeveral ſorts of Apples ripen not at the ſame time, or that the Wind prevents their hanging long enough on the Trees, or the groſs ignorance of the Operator, or his covetouſneſs of having more Liquor than otherwiſe he ſhould expect) hath not only been the occaſion of much thin, raw, phlegmatick, ſowr, and unwholſom *Cider*, but hath caſt a reflection on the good report that *Cider* well made moſt rightly deſerves.

Therefore, in caſe your Fruit be not ripe all at one time, ſelect ſuch ſorts that are of a like degree of Maturity, and according to the quantity of them, proportion your Veſſels; For you were better make it at ſeveral times, than ſpoil your whole Vintage.

Or if the Winds ſhould beat down many of your Apples, and you are unwilling to ſpoil or loſe them, you may let them lie dry as long as you can before you grind them, that they may obtain as great a degree of Maturity as they can; and let that *Cider* be throughly fermented before it be barrel'd, according to the Rules hereafter ſet down, and not kept too long, to acquire too much acidity.

Let

Let not any think that they advantage themſelves any thing by mixing unripe with ripe Fruit, or by grinding their Apples too ſoon; for they were better loſe a part of their *Cider*, than ſpoil the whole.

To prevent which ill effect, let your Fruit be through ripe; which is known, Firſt, By the colour of them, if you are acquainted therewith, elſe that may deceive you; ſome Apples appearing brighter before they are ripe, than others when full ripe: the ſame may be obſerved in *Pears*, and eſpecially *Cherries*; ſome ſorts requiring twelve or fourteen days throughly to maturate them after they ſeem to be as ripe as the ordinary *Flanders*. Secondly, By the ſmell, moſt *Apples* and *Pears* caſting a fragrant Odour when ripe, and is a very good ſign of their maturity, although ſome *Apples* and *Pears* have but little ſmell; and yet make excellent *Cider*. Others alſo have a ſtrong mellow ſcent, as ſeveral early Summer Fruit, and yet yield a ſharp Liquor unleſs cautiouſly made. Thirdly, By the blackneſs of their Kernels, which when they are of that colour, it doth ſignifie that the Fruit is inclining to be ripe; for after the Kernels are black, the Fruit ought to hang on the Trees ſome time to perfect their

their Maturity; the Liquor within them being better digeſted and concocted by the virtue of the Sun on the Tree, than by any Artifice whatſoever afterwards.

On the other hand, be cautious of letting Fruit hang on the Trees too long, leſt they grow pulpy, which ſome Summer-*Apples* and *Pears* are apt to do: it ſo unites the Juice with the fleſhy part of the Fruit, that it is difficult to ſeparate the one from the other.

Gathering of Fruit. When your Fruits are in a good condition as to Maturity, and the weather fair, then gather them by hand; which if your ſtock be not greater than your number of hands, is a much better way than to beat or ſhake them down; but if your ſtock exceed, then ſhake them down, ſo that the ground be dry. For this purpoſe low Trees are to be preferr'd, as before was obſerved.

If any of your Fruit happen to be broken, lay them by themſelves, an ordinary bruiſe not much injuring the Fruit; but where the Skin is broken, the Spirits exhale, for the bruiſes beget a fermentation, after which the Spirits firſt riſe, being, where the skin is whole, detained.

In ſome parts of *England* their ignorance, or

or rather lazineſs, is ſuch, that they ſcarce beſtow the gathering of their Fruit to keep for their Table; how then can you expect their care for *Cider*?

Some do prefer the grinding of Apples immediately from the Tree, ſo ſoon as they are throughly ripe, becauſe they yield the greater quantity of Liquor: They alſo pretend, though erroneouſly, that the *Cider* will drink the better, and laſt longer than if the Apples were hoarded. *Hoarding of Apples.*

But if you intend to have your *Cider* pleaſant and laſting, let them lie ſome time in a heap out of the Sun and Rain, and on a dry Floor, on dry Rye, Wheat, or Oaten-ſtraw is beſt, until they have either ſweat out, or digeſted a certain crude Phlegmatick humour that is in moſt of our Fruits: the ſame you may obſerve in Nuts and all ſorts of Grain. The time for this muſt be referr'd to your diſcretion; ſome preſcribing a Month or ſix Weeks, others but a Fortnight: Be ſure not to let them lie too long leſt they grow pulpy, which will very much incommode your *Cider*, although ſome are of another opinion; *In medio virtus*: from Ten to Twenty days are the beſt times: the harſher the Fruit, the longer the time.

The greateſt inconvenience of pulpy Fruit

Fruit is, that at the firſt preſſure it yields leſs *Cider*, and that thicker than that which proceeds from Fruit leſs pulpy. But the *Cider* of pulpy Fruit is to be preferr'd. The right way of managing it you ſhall find in this Treatiſe.

Let them not lie on a Floor of ill ſavour, nor on Deal-boards, but with Straw under them, leſt they contract an ill reliſh, which an Apple will do in a ſweat: nor let them lie abroad, as ſome will do, except on dry Ground, and in dry Weather, and covered. Although Rain can do them no more hurt than fair Water mixt with the *Cider*, yet every ſort of Apple will not bear it. And the lying of Fruit abroad in the Rain and cold Dews, makes the *Cider* flat and dull.

For, from the due time, place and manner of hoarding of the Fruit, is oftentimes the *Cider* very good, which otherwiſe might have proved very bad.

By hoarding only of your Windfalls for ſome time, or until the time that it was expected they ſhould have been Ripe in, doth very much meliorate the *Cider* made of them, which otherwiſe might have been very bad.

Thus when your Fruit is duly ripe, gathered,

thered, and preſerved, it is ready for the Mill.

SECT. II.

Of Grinding of Apples.

One great Impediment in the improveing of this moſt excellent drink, hath been the want of a convenient way of grinding or bruiſing the Fruit. It having been the uſage or cuſtom in moſt places of *England*, where but ſmall quantities of this Liquor hath been made, for the Operators to beat their Fruit in a Trough of Wood or Stone, with Beaters like unto Wooden Peſtles, with long handles. By which means three or four Servants or Labourers might in a days time beat twenty or thirty Buſhels of Apples: ſome part thereof into a Jelly, being often under the Beaters, whilſt other part of the Fruit by its ſlipperineſs eſcapes the Beaters; much of it alſo by daſhing being waſted: yet by this means are made very great Quantities of *Cider* in ſeveral Places.

But where the Fruit increaſed, that this way became too tedious for the *Ciderift*, the Horſe-Mill was, and is ſtill much in uſe, grinding for the whole Pariſh: That is, by placing a large Circular Stone on edge in a round

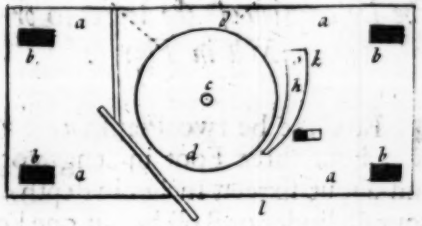
round Trough, made alſo of Stone, in which the Fruit is put, and Ground by the ſingle upright Stone moved round by a Horſe, as the Tanners grind their Bark; in which Mill may be ground ſometimes three or four Hogsheads a day; and ſome are ſo large, that they grind half a Hogshead at a Griſt.

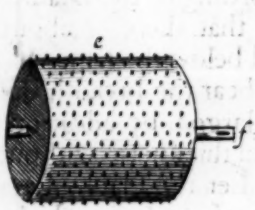
Theſe Mills are very chargeable to make for any one that hath but an ordinary Plantation; and to carry your Fruit to a Pariſh-Mill, and bring back your *Cider*, &c. is troubleſom, if at any diſtance: And the *Cider* made therein, accuſed of an unpleaſant taſte, acquired from the Rinds, Stems, and Kernels of the Fruit, which in theſe Mills are much bruiſed.

Some have taken the pains to grate Apples on a Grater made of perforated *Latten*, ſuch that Houſe-wives uſe to grate Bread on; others, to beat them on a Table with Mauls: but theſe ways are to be rejected as idle and uſeleſs, where you have any conſiderable plenty of Fruit.

To remedy the inconveniencies, trouble and expences in thoſe ſeveral ways that have been hitherto uſed, you may erect a Mill, the Ichnography whereof, you have in the following Figure.

The





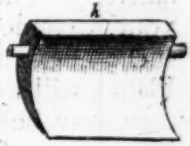
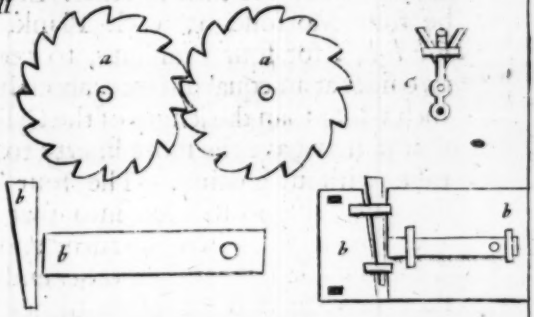


Fig: II.



The Deſcription of the Ingenio *or* Cider *Mill in Fig.* 1.

LEt there be two Planks *a a a a*, of about three Foot in length or more, and about ſixteen Inches in depth, in caſe your Cylinder or Roll be but one Foot Diameter, elſe according to the Diameter of your Cylinder, that there be about two Inches above and below the ſame. If your Planks will not bear the breadth deſired, they may be enlarged by addition of a Piece of the ſame thickneſs, without any inconvenience. Let the Planks be about two and a half, or three Inches thick, and made to quadrate each to other. Let there be four Mortoiſes in each Plank, as at *b b b b*, , for four Tranſoms, to keep the two ſides at an equal diſtance, about half an Inch wider than the length of the Cylinder, that it may have the more liberty to move eaſie without grating. The four Tranſoms may be pinn'd faſt into that Plank that is next you when you turn, and their Tenons made long at their other ends, that they may be two or three Inches without the other Plank, that they may be key'd

key'd at the farther ſide, the better to take to pieces when occaſion requires.

c, Is the Center of the Cylinder in each Plank exactly one againſt the other, there muſt be a hole for the Axis to run in, which ought to be ſtrengthned with a ſmall Plate of *Iron* or *Braſs*, to prevent wearing.

d d Shews only the Circumference of the Cylinder, which at *e* appears more plainly, being made of ſolid *Oak*, or *Beech*, the dryer the better, and freer from ſhrinking, of about a Foot or eighteen Inches in length; and if a Foot in length, then eighteen Inches in Diameter; if eighteen Inches in length, then a Foot in Diameter; after which rate you may vary as you pleaſe. This Roll or Cylinder muſt be turned exactly on its Axis, which muſt be made of Iron of about an Inch ſquare, and fixed through the Center of the Cylinder: then turning it on that Axis, with a turning Goudge and Chiſel, will cauſe it to run true; which is principally to be obſerved. The Axis muſt extend beyond the Cylinder ſix or ſeven Inches at the one end, where it muſt be flatned an Inch or two, with an Eye, that the Hand-wheel may be key'd on there, as at *f*.

This Cylinder after it is placed between

the two Planks in its Frame, muſt be knock'd full of ſmall Peggs of Iron, of about three quarters of an Inch in length, made flat, and tapering like a Wedge, as at *g*. They muſt not ſtand or appear a full quarter of an Inch above the ſuperficies of the Cylinder: for the ſhorter they are, the finer will your Pulp or Murc be; and the higher, the courſer: you may place them in ſuch order, that the one may ſtand againſt the ſpace laſt preceding, in a Quincunxial Order; about Four hundred of them will ſerve for a Cylinder of a Foot in length, and of the like Diameter, and ſo after that rate for a greater or leſſer. Thus will this Cylinder be made rough to Grind your Apples as fine as you pleaſe. Then cut a piece of Wood of the length of the Cylinder, and about a fourth part of its Circumference, hollow almoſt to the Circumferential Line of the Cylinder, as at *h*: this piece muſt have a Pin at each ſide, near the upper part of it, as at *i i*, which muſt have holes in the two Planks for them to move eaſie in, as at *k*. The uſe whereof is to keep the Apples cloſe to the rough Cylinder, that they may be throughly Ground; this is alſo govern'd by a moveable Tranſome that extends from the one

Plank

Plank to the other, through the Mortoiſes at *l*, which Mortoiſes are made broad, to admit of Keys to force the Regulator or piece of Wood nearer or farther as you pleaſe.

The prickt Lines ſhew the Boards that deſcend from the Hopper or Bin, to direct the Apples to their work.

Note, that the greateſt inconveniency that ever happened in ſeveral years experience of this *Ingenio*, was, that mellow Apples being Pulpy and light, would ſtick to the Cylinder, that it would much impede the Operation: which is eaſily prevented by making the Cylinder ſmooth, and placing the Pegs of Iron not too near, but leaving ſufficient ſpaces; that when the Cylinder is wet with the Juice of the Apples, the Pulp may fall from it in its motion; which it will eaſily do, and the better, if the Pegs be not flat headed: always obſerving, that the diſtances or ſpaces of one Row, may be filled or ſupplied in the next two or three Rows, that the Apple may not wear in Ridges.

It hath been alſo found by experience, that the moveable piece *h*, being placed ſo much under the Cylinder, did hinder the Pulp from falling off the Cylinder:

Therefore I have placed it higher, and took away the piece I ſet above it, and when the Apples were mellow, laid a great quantity of Fruit in the Hopper, or Bin, the weight of which kept the Fruit cloſe to their work; by which means this ſingle Roll Mill made not only a quick diſpatch of the Fruit, but ground them exceedingly well.

By this *Ingenio*, have been ground very fine, ſometimes five, and ſometimes eight Buſhels of Apples in an hour, and with no harder labour, than that two ordinary Labourers may, the one feeding, and the other grinding, hold it, by interchanging, all the day, with eaſe and delight.

But if your Stock be ſo great, that this ſmall and eaſie *Ingenio* will not diſpatch them faſt enough, or that you intend it for a general uſe; Then may you make your Planks the longer, and place two Rolls or Cylinders.

To the firſt or nether Roll, you may make, either one handle to turn it, or if you pleaſe, you may by letting the ſpindle come through at both ends have two handles, that by two Men turning of it, a greater diſpatch may be made. This way of the double Cylinder appearing to be the

moſt

moſt natural and efficacious way hath occaſioned many and various Experiments towards the perfecting of it. At the firſt, about ſeven years ſince, I made the two Rolls ſmooth, which would not by any means take the Apple, then I made them rough by cutting ſmall Grooves, which by placing the Rools at ſome diſtance, cauſed the Apples to paſs through them, which only bruiſed them into big Pieces: Then by the Wedges made for that purpoſe, I placed the Rolls nearer, and cauſed the ſame broken Apples to paſs through again; at which ſecond time they came very finely ground. But this double Labour, although far exceeding any former old way, yet ſeemed not to be the utmoſt perfection of this *Ingenio*, and ſo cauſed my ſelf and ſeveral others, to whom I had imparted thoſe Experiments and Obſervations I had made about it, to try what farther might be done, to make this curious *Machine* more uſeful and facile: Whereupon ſeveral at the ſame time diſcovered this very way that is now in uſe, which is as followeth,

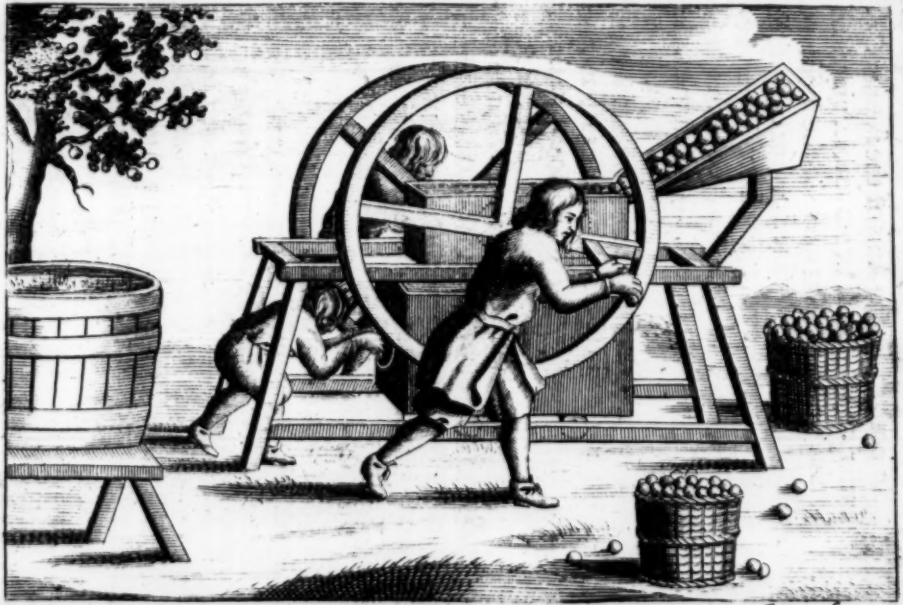
Let the Cylinders or Rolls be about eight or ten Inches Diameter, and about ten Inches in length; Let the Teeth be about

two Inches, or two Inches and half diſtance, ſo that they may be capable to take in an Apple of an Ordinary ſize; Let both the Cylinders or Rolls be ſo near of a ſize, or rather the handle Roll the bigger, that the number of the Teeth in both being equal and cut ſtreight, they may not interfere the one with the other. Let the Teeth be cut bellying or rounding ſo that in the turning the Rolls they may ſhut even in every place alike, according to *a a*, in the ſecond Figure.

By this means whatever Fruit you throw in, the Teeth take them and reduce them to a pulp, in caſe you ſet the Rolls near enough, for the nearer they are the finer will they grind, and the farther apart the courſer, but then will they make a quicker diſpatch; and for mellow Fruit, it is not very material that they be finely ground. You muſt be ſure to keep the Mill conſtantly fed by hand, and not overcharged, leaſt it choak and ſoon tire the Grinder.

Some make the nether or handle Roll, leſſer than the other, as the firſt about ſix Inches Diameter, and the farther about twelve Inches, with double the number of Teeth to the former, by which means the Mill will go much eaſier than the other way.

In



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In both theſe, the Axis of the farther Cylinder or Roll muſt be moveable, pieces of Wood or Iron being made in the inſide of the Planks, to be Wedged nearer or farther as occaſion requires: Thoſe of Wood being repreſented by *b b* in the ſecond Figure, and thoſe of Iron by *c*, in the ſame Figure.

The only Perſon that by long experience hath attained to the true and exact way of making theſe *Ingenio's*, with great variety, is Mr. *Henry Allen* a Cabinet-maker, at the ſign of the Cabinet in *Exeter-ſtreet*, near the *Strand*, *London*. He not only makes them compleat after the Methods here preſcribed, but with ſeveral other additions, as well for expedition as eaſe; Having one ſort ſo compleat, that it will throughly grind and diſpatch Fruit enough (by one Mans labour in turning) to make near twenty Hogſheads of *Cider* in a day, and of duration, the Rolls being made of *Lignum Vitæ*, and the reſt for the moſt part of Iron and Braſs, that it will laſt an Age.

He hath ſeveral by him of every ſort, curiouſly made, and without any defects, and ſuitable to every Mans occaſion.

Although your Habitation be far from *London*, yet it is better to have your Mill from

from an experienced Artiſt, than confide in dull Country-workmen, who either out of ignorance or envy, it being a Novel, make this ſo uſeful an Engine become of little advantage to you.

This *Ingenio* may be made to be driven by ſtrength of Water, where your Houſe ſtands near ſome Current, by an underſhot Wheel fixed to the Axis of the Cylinder or Roll extending it ſelf eighteen or twenty four Inches from the Body of the Mill. Or in caſe your Water be not ſtrong enough to drive it with an Underſhot Wheel, a ſmall Spring raiſed high enough to drive an Overſhot Wheel of eight or ten Foot Diameter, will grind a great quantity of Fruit in a day, having one to ſerve and feed it. And the leſs Water, or but little raiſed, will ſerve where the ſingle Roll or Cylinder is uſed, that going much more eaſily than the double.

On any River may be faſtned by an Anchor and Cable, a Barge, Lighter, or other Veſſel, overthwart which may be laid a Beam or Axis, at each end whereof let there be a Wheel of Floats, and about the middle of the Axis may you cut Teeth, as in the ſecond Figure, and make another Roll to anſwer it; in caſe your Current be

be ſtrong, you may make the Teeth the longer, and the other Roll anſwerable, and the more Apples may you add at a time in the feeding of it, by means whereof, the Apples of a whole Pariſh or Town, or more, may be ground without any other labour than attendance. The one end of the floating Veſſel may ſerve to contain the Fruit, the other the Veſſels for the Pulp, the Preſs, &c. Such a Machine placed in the River of *Thames*, near *London*, would turn with every Tide, and diſpatch vaſt quantities of Fruit that are uſually beaten up for Cider in the three Months of *September*, *October*, and *November*, in and near that City.

As for the handles of the hand-Ingenio's or Mills, it is very convenient that there be a Wheel, as in the Frontiſpiece of this Book may be diſcerned; and that the handle be near two Foot from the Center: for the larger and heavier the Sweep is, the better and more eaſily doth it diſpatch the harder or tougher Fruit.

It is alſo convenient the far end of your hand-Ingenio be fixed againſt ſome Poſt or Wall, that it may endure ſudden Jerks without diſplacing; For its looſe ſtanding is a great Impediment to a quick operation.

Alſo

Alſo in the double Roll'd Mill, you muſt be ſure to add Boards under the Rolls, both on the ſides and at the ends, to convey the Pulp into the Veſſel placed underneath for the receiving of it: For otherwiſe will the quick motion of the Rolls diſſipate the Pulp to waſte, which now will be entirely conveyed into the Receiver, which may be either a Tub or Kiever, or elſe a ſquare Cheſt made long and deep, of Eime well jointed, and fit to ſhove in at the end under the Mill, on two Rolls made on the lower part of the Treſſells or Frame on which the Mill ſtands for that purpoſe; when this Receiver is full, it is eaſily drawn out, and when emptied, eaſily ſhoved in again.

Picking of Fruit.

When you bring your Apples to the Mill, as you fill them up, caſt by all ſuch that are green and unripe, rotten, or otherwiſe naught, and all Stalks, Leaves, &c. that may injure your *Cider*; for it is better to want a ſmall quantity of your Liquor, than to ſpoil the whole.

Some are of opinion, that Rottenneſs in the Apple injureth not the *Cider*, but that a convenient quantity of rotten Apples mixt with the ſound, is a great help to the fermentation and clarification of the *Cider*.

But

But I preſume, they mean ſuch Apples only that have been bruiſed in gathering, ſhaking down, or carrying, which will by lying become rotten, and (the Skin being whole) be not much the worſe, only the *Cider* will retain a ſmack of them: yet let me adviſe, that you admit not them amongſt your *Cider* that you intend for keeping, but rather make *Cider* of them for a more early ſpending: for others affirm, that one rotten Apple corrupts a whole Veſſel; which I ſuppoſe is intended only of the putrid Rottenneſs.

When your Apples are grinding, it is not neceſſary to grind them very ſmall: For if they are not very ſmall ground, you will have but little the leſs of *Cider*, (although the contrary be commonly believed) becauſe in the more vulgar way of grinding or beating, much of the Apple eſcapes unbruiſed, unleſs the whole be very much beaten or ground.

After your Fruit is ground, 'tis good to let it ſtand 24 or 48 hours, according as your time or conveniency will admit, ſo that it be all together, or in good quantities in large Veſſels; for ſtanding thus, it not only undergoes one degree of fermentation or maturation, but acquires colour, much

much commended in *Cider*, and alſo cauſes the leſſer parts of the Apple unbruiſed, eaſily to part with its Juice in the Preſs: although the general advice be, to preſs it immediately from the Mill.

You may leave a paſſage open in the bottom of your Vat, wherein you keep your bruiſed Apples, during the time of its being therein. Some of the *Cider* may ſpontaneouſly diſtil into a Receiver placed under it; or you may have a falſe bottom in the inſide full of holes that the greater quantity may be had, which may run through ſome Tap or other paſſage into your Receiver.

Which *Cider* ſo obtained, far exceeds that which is forc'd out; as the Wines of *France* that are unpreſs'd, are by much preferr'd to thoſe that are preſs'd; and live Honey that diſtils of it ſelf from the Combs, is much better than that which remains, and is afterwards preſſed out.

As for your Preſs, there is no form yet diſcovered that exceeds the Skrew-preſs, of which ſort there are very large, that a Hogſhead may be preſſed at once; and as ſome report, that a Hogſhead or two runs out commonly before the Apples ſuffer any conſiderable preſſure. *The Cider Preſs.*

In

In thoſe large Preſſes, the uſual way is to preſs it in Straw, by laying clean Wheat-ſtraw in the bottom of the Preſs, and a heap of bruiſed Apples upon it; and ſo with wiſps of Straw, by twiſting of it, and taking the ends of the Bed of Straw, with it you go round your heap of Apples, which are to be encreaſed, until by winding round the Straw, and addition of Apples, you have raiſed it two Foot or more, as your Preſs will give leave: then apply your Board and Skrew over it, and you may preſs it dry in form of a Cheeſe, which is the moſt expeditious way, and moſt for advantage, of any way yet known; for a ſmall ſingle Mill, after the Form before deſcribed, will grind in one day, as much as a Man can well preſs in a good Skrew-preſs in another day. Some of theſe large Skrew-preſſes are made of two Skrews, and ſome but of one: but in caſe your Stock be but ſmall, a leſs Skrew, and of much leſs price may ſerve, made after the Form of that in the Frontiſpiece; and in ſtead of Straw, you may have a Basket or Crib well made, and put Straw round it in the inſide, to preſerve the Pulp, which would otherwiſe either run through, in caſe the paſſages be wide; or choak them in caſe they be nar-

row

row; or a Hair Bag placed in a Crib or Frame made under the Screw, to preſerve the Bag from tearing.

In your preſſing, in caſe you intend not to uſe your Pulp afterwards for the making of *Water-Cider*, uſually called *Purre*, or *Ciderkin*, then it is beſt to preſs it as dry as you can; but in caſe you reſolve to add Water to your Murc, and to preſs it again, then you need not preſs it too hard; for your *Cider* will then be the worſe, and ſo will your *Purre* or *Ciderkin*: For the laſt ſqueezing is the weakeſt, and makes your *Cider* the rougher; and if any thing will, that gives it a woody taſte, unleſs it be prevented in the eaſie grinding.

Some commend the Flail-Preſs, being made after the manner of a Cheeſe-Preſs, with heavy Weights or Stones at the end of the Flail, which near the Fulciment or Center, hath great force on the Matter to be preſſed, and as the Pulp yieldeth its Juice, ſo this Weight followeth it, until it be preſſed as well as by this means it can be done, and that without any conſtant attendance, which is required in the Screw-Preſs; and the Liquor thus gradually expreſſed, deſcends more clear than

that which is forced out ſuddenly by the Screw; but this way is not for expedition, nor to preſs it dry, unleſs it ſtand long.

But if you are willing to decline the Screw, you may make a Preſs that ſhall preſs gradually, as doth the Flail, and much more expeditiouſly, and may be made to equal the Screw-Preſs for nimbleneſs and quantity, and without all peradventure, will make the Pulp, eſpecially of mellow Fruit, yield its Liquor finer than that from the Screw.

The way is thus.

Let there be two Poſts fixed in the Ground, as *a a*, about three Foot apart. Let there be two Tranſoms well Tenanted into them, as at *b b*, which may be about two Foot or more apart; through the middle of which may be made two Mortoiſes to let down the tooth'd Iron Bar, or Rod, *c c*. The back or ſmooth ſide whereof muſt bear againſt Braſs, or againſt two Trundles or Rolls of Iron or Braſs, to make it ſlide up and down eaſily; between the Tranſoms, let there be an Axis of Iron, of about an Inch and half Diameter, or more, having two round places filed againſt the two Poſts: Let there be

a Nut

Fig: III.

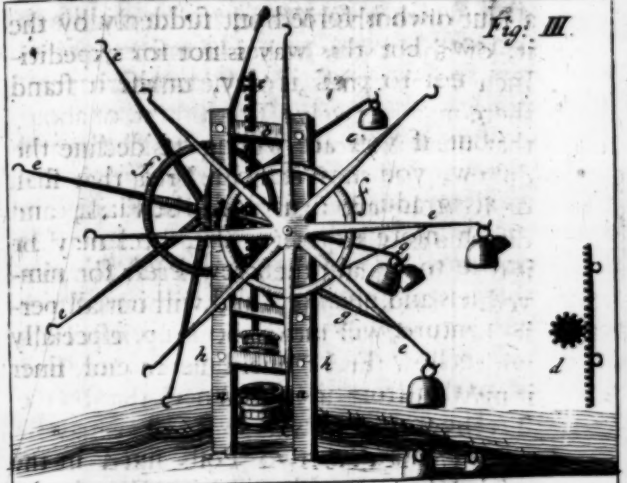

Fig: IIII.

The Forme of the Vessell.

a { the Bung hole.

b { a small Vent hole.

c the Tap.

a Nut or toothed Wheel in the middle of it, of about four Inches Diameter, and an Inch in thickneſs, or near thereupon: there may be twelve Teeth on it, or about that number, according to which ſize and diſtance, let the Teeth in the upright Bar or Rod be cut ſo that the advantage in diſtance may be on the Nut, becauſe that is the Mover, and the upright Bar the Moved. Then let the Axis, with its Nut on it, be ſo placed into the two upright Poſts with Staples and Braſſes at each end, that it may move at a fit diſtance, that by the Teeth of the Nut the upright Bar may be elevated or depreſſed at pleaſure. This inſide Work may be plainly diſcerned at *d*. The nearer the Nut is placed againſt either of the Rolls that are placed in the Tranſoms, the leſs will the upright Bar be apt to bend.

Let each end of the Axis it ſelf beyond the upright Poſts, to be fixed into the Center of Wood, reſembling the Nave of a Wheel, into which the Leavers *e e e* muſt be faſtned.

Let there be eight Leavers, or more, on each Center, ſo placed, that the Leaver on the one ſide may be againſt the Space in the other. There may be a Ring of Wood,

Wood, as at *f f*, made to preſerve them at their true diſtance, and that all may bear their proportionable Burden, though the Weight be but on one or two. This Ring may be placed at about two Foot from the Center.

For a farther ſtrengthning of the Leavers, in caſe they be made ſlender, or the Weight too heavy for them, you may add Stays of Wood, or ſmall Iron, as at *g g*, and ſo may continue them to every Leaver.

You may have in readineſs by you ſeveral Weights of Stone, Iron, or Lead, with Rings, Cords, or other Faſtneſſes to them, to the quantity of three or four hundred weight, or more, ſome of half an hundred, others leſs.

The lower end of the Toothed Bar muſt be fixed into a Follower of Wood, under which, when it is raiſed to its heighth, at about two Foot diſtance muſt be placed a large Bench, made of a thick Plank, of five or ſix Inches thick, and fixed at both ends to the upright Poſts, as *h h*. On which you may place your Matter to be preſſed.

Then with your Hand move your Leavers, until it preſſeth hard or tough; then

hang on a Weight on the end of one of the Leavers, having a Hook of Iron to that purpoſe fixed at the end, and ſo on another of the other ſide: And as the Liquor flows from the Pulp, ſo will that ſhrink, and the Weights move downwards; then may you add more on the next upper Leaver, and as they ſink you may take them off from the under, and apply them to the upper. And whilſt theſe Weights are doing your Work, may you otherwiſe employ your ſelf, until they need removing.

It is a very great ſtrength that theſe Leavers have in them, being thus placed, and may be made to equal in force any Screw for this Work; and hath theſe advantages above it: That it requires not ſo conſtant attendance as doth the Screw; then where the Fruit is over-ripe, or pulpy, it preſſeth out more gradually that Liquor, which with a ſudden force it will not ſo eaſily part withal. You may alſo place more under this Preſs at a time, than under the Screw, ſo that in bigneſs it be proportionable, becauſe it may ſtand longer in the Preſs, and be more eaſily managed until it be dry-preſſed. And (which is a principal advantage) the Liquor will deſcend

ſcend more fine out of pulpy Fruit, by this gradual way, than out of a more violent forcing Screw, pulpy Fruit uſually emitting a thick Juice, if ſuddenly forced from it.

In caſe your Leavers be but five or ſix Foot in length, they will eaſily move round without being hindred by the Ground; but if you make them longer, you may abate the Ground on each ſide of the Poſts proportionably, more conveniently than you can raiſe the Preſs.

SECT. III.

Of Purifying your Cider.

As your Veſſel fills under your Preſs, pour it through ſome Streyner into a large Vat, only to detain the groſs pieces of Apple, *&c.* from intermixing in the Vat; from whence moſt preſcribe to tun it immediately into the Barrels wherein it is to be kept, leſt its Spirits ſhould evaporate: which is a miſtake; for if a Cloth only be caſt over the Vat or Tun, it is ſufficient to preſerve it; for there is in it a wild Spirit, that if detained, will break any Veſſel whatever that you ſhall ſtrictly en-

cloſe it in; therefore to waſte that, is no injury to your *Cider*.

Now when it is in your Tun or Vat, it ought to be there fermented, and in ſome degree purified, and from thence pure ſeparated from the impure, and ſo Tunn'd into the Veſſels wherein it is to be preſerved, that the Dregs may not paſs with it, which will very much incommode your *Cider*.

In order to which, it is to be underſtood, that the Juice of the ripe pulpy Apples, as *Pippins*, *Renetings*, *&c.* is of a ſyrupy and tenacious nature, that whilſt it is cold, doth detein in it diſperſed thoſe Particles of the Fruit, that by the preſſure comes with the Liquor, and is not by ſtanding or frequent percolations ſeparable from it; which Particles, or flying Lee, being part of the Fleſh or Body of the Apple, is (equally with the Apple it ſelf, when bruiſed) ſubject to putrefaction: by which means, by degrees, the *Cider* becomes hard or acid; but if it be preſſed from other Apples, as *Redſtreak*, *Gennet-moyle*, *&c.* that more eaſily part with their Liquor, without the adheſion of ſo much of the Pulp, and which is of a more thin Body: This Liquor ſhall not be ſo ſubject to reiterated fermentation,

fermentation, nor ſo ſoon to acidity, becauſe it wants that more corrupt part that in the other comes with it.

For *Wine*, *Ale*, *Beer*, and other Liquors, in every degree that they tend to acidity, they become more clear, by the precipitation of the more groſs Parts that are firſt ſubject to putrefaction, by the vertue and heat whereof, the Spirits are chaſed away; and ſo in time, as thoſe corrupt Particles were more or leſs in it, is the Liquor ſooner or later become Vinegar.

As *Beer*, whereof *Vinegar* is intended to be made, is never fermented, nor the feces precipitated at the firſt, as it is when it is to be preſerved for drinking. And *Claret-wine* percolated through *Rape*, or the acid *Murc* of *Grapes*, becomes a *White Vinegar*; ſo that the precipitation that is in both thoſe Liquors, happens by reaſon of their becoming acid.

If therefore you intend your *Cider* ſhall retain its full ſtrength and body, and to preſerve it ſo for any conſiderable time, endeavour to abſtract from it that flying Lee, or *Materia Terreſtris*, that floats in it (as ſometimes it does in Muſt preſſed from *Grapes*, that hath in it more of an active Principle than that from *Apples*)

Apples) leſt your *Cider* be thereby impaired.

Neither is it to be imagined, that that ſort of *Cider* that is of that tenacious Nature as to keep up its Lee, is therefore ſtronger than that which more eaſily lets it ſubſide; any more than that thick ſmall unfermented *Ale*, ſhould be ſtronger than that which hath more of the Spirit or Tincture of the Mault, and well defecated; or that *Wine* ſhould be ſmaller than *Cider* for the ſame reaſon.

Now rightly to underſtand the cauſe of this detention of Lee in the Body of the Liquor, you are to conſider, that there are ſeveral ſorts of Fruits that yield a clear and limpid Juice, as a *Grape*, and a *Common Engliſh* and *Flanders Cherry*, and ſome others; and other ſorts of Fruits that yield a more groſs Juice, as a *Rasberry*, *Black-Cherries*, *Plums*, and ſome others; and that there are ſome Fruits that yield a very thin and clear Juice at a certain degree of maturity; which a little after, when more ripe, it becomes more thick and groſs; as a *Gooſeberry*, *Currant*, and ſome Species of *Apples* and *Pears*.

In the *Grape*, and *Engliſh* and *Flanders Cherry*, the cauſe that the Liquid part ſo eaſily

eaſily parts from the more ſolid, may be from the great inequality in the proportion of the Parts, the liquid being the more, and overcoming the leſſer: which in the other, *Cherries*, *Rasberries*, and *Plums*, the contrary happens, that much of the Pulp adheres to the Liquor.

Alſo in the other Fruits, as *Gooſeberries*, *Currants*, and ſome *Apples* and *Pears*, by the length of time, a thorow maturation cauſes a ſolution of the more groſs Parts, being of themſelves tender, which makes them ſo acceptable to the *Palate*; which in Fruit more inſoluble doth not ſo happen; yet may the Juice of thoſe Fruits that thus may be extracted more pure and limpid, be more excellent, and be preferr'd to thoſe more groſs, as it uſually happens, becauſe of the difficulty of defecation.

One principal help to purifie any Liquor, or to provoke fermentation, is warmth, as is vulgarly practiſed amongſt Houſe-wives, who in fermenting both Bread and Beer, preſerve it warm during that operation. For any liquid Body, wherein fermentation is required, by warmth becomes more thin, that it eaſily admits of a ſeparation of the feculent Parts; and like unto a glutinous Body, the colder it is, the thicker

it

it is, and doth not ſo eaſily part with its Feces.

It having been experienced that Wine in the Muſt, before it hath begun to ferment, being ſtopt cloſe in a Veſſel and let down into a Well or River, will for a long time retain its ſweetneſs, without any ſenſible fermentation; by reaſon that the coldneſs of the ambient Body the Water, (the like happens from a cold Air) checks the Spirits, that they cannot act as they do in fermentation.

By warmth only. Therefore warmth is a pincipal means to accelerate fermentation, as hath been ſometimes tryed in *Cider*, by heating a ſmall Portion of it ſcalding hot, and caſting it into the Tun on the new Muſt, ſtirring it together, and covering it over, hath cauſed a good fermentation, and ſeparation of its Lee, making it much more fit for preſervation, than if it had been barrell'd without any fermentation at all. It hath been alſo obſerv'd, that cool Cellars protract the fining of *Cider*: And that *Cider* expoſed to the Sun, or other warmth, hath more eaſily fermented, and become fine, for the Reaſons aforeſaid.

The *Germans* have Stoves in their Vaults, which they heat very hot, or elſe make Fires before

before every Vat; by which means the Muſt of their Wines ferments vehemently; after ſome days they Rack it; the ſame way may be obſerved for *Cider*, whilſt it is new, but if it hath ſtood long and then ſerved thus, it muſt ſoon be ſpent.

But to ferment and purifie this *Britiſh-Wine*, or any other *Vinous Liquor* effectually, you may take of *Gluten piſcis*, *Water-Glew*, or *Iſinglaſs*, as it is uſually termed, about the proportion of three or four Ounces to a Hogſhead; beat it thin on ſome Anvil, or Iron-wedg; cut it in ſmall pieces, and lay it in ſteep in *White-Wine* (which will more eaſily diſſolve it than any other Liquor, except *Vinegar*, Spirits, *&c.* that are not fit to be uſed in this Work) let it lie therein all night; the next day keep it ſome time over a gentle Fire, till you find it well diſſolved; then take a part of your *Cider*, or proportion about a Gallon to twenty Gallons; in which boil your diſſolved Water-glew, and caſt it into the whole maſs of Liquor, ſtirring it well about and covering it cloſe. So let it ſtand to ferment, for eight, ten, or twelve hours, as you pleaſe; during which time, the *Water-glew* being thinly and generally diſperſed through the whole Maſs of Liquor, and aſ-

By Iſinglaſs

ſiſted

ſiſted by the warmth and pertenuity of it, precipitates a part of that groſs Lee, that otherwiſe would have decayed it, and raiſeth another more light part of it, as a Net carrieth before it Leaves or any other groſs matter in the Water through which it is drawn, and leaveth not any part of its own Body in the purified Liquor, to alter or injure the Subſtance or Taſte of it. Which, when you obſerve that it hath done working, you may draw out at a Tap below from the Scum, or may firſt gently take off the Scum as you pleaſe. Or you may uſe it thus, Steep your *Iſinglaſs* in hard *White-Wine*, enough to cover it, after twenty four hours beat the *Iſinglaſs* to pieces, and add more Wine, and four times in a day ſqueeze it to a Gelly, and as it thickens add more Wine; when it is reduced to a perfect Gelly, take about a Pint or a Quart to a Hogſhead, and take three or four Gallons of the *Cider* you intend to fine, and mix well with your Gelly, and put it into your Veſſel of *Cider*, and beat it with a Staff. This cold way is much better than the other, for boyling of part of the *Cider* makes it apt to decay the ſooner.

This Liquor thus gently purified, may

you

you in a full Veſſel well cloſed, preſerve a long time, if you pleaſe, or draw it and Bottle it in a few days, there being no more *Lee* in it than is neceſſary for its preſervation.

A ſmall quantity of quick Lime caſt into a Veſſel of new Wine, will make it ferment, not only by reaſon of its warmth, but by reaſon of a quick Salt that is in it, which without doubt will have the ſame effect upon *Cider*, as may the Powder of *Calcined Flints*, *Alabaſter*, *White Marble*, or *Roch-Alum*.

The Shavings or Chips of *Fir*, *Oak*, or *Beech*, are great promoters of purification, or fermentation. Therefore new Veſſels cauſe a quick fermentation, but be ſure they are well ſcalded before you uſe them, leaſt they occaſion too violent a fermentation, and make your *Cider* acid.

But if your *Cider* hath ſtood long, and will not be fine, as oftentimes it ſo happeneth; then take *Iſinglaſs* about an Ounce to an Hogſhead, and ſteep it in about two Quarts of *Cider* a day or two, until the whole be reduced to a Gelly, which by ſtanding warm, it will eaſily do. Then draw off about a Gallon of the *Cider*, and mix the Gelly (being cold) through-

ly

ly with it, and put the whole into the Veſſel of *Cider* at the Bung, and with a ſplitted Staff ſtir it well together, and in a day or two it will be fine, without any prejudice to your *Cider*.

This very way or method of purification will ſerve in all ſorts of Liquors, and is much to be preferred in the Juices of Fruits, to that vulgar way of making them ferment by the addition of Yeaſt or Toſts therein dipp'd, as is uſually preſcribed; that being but an acid Excitation to Fermentation, all things tending to Acidity being (as much as may be) to be avoided in our operations.

This way alſo is better than the tedious ways of percolation, and racking from Veſſel to Veſſel; which waſts not only the Spirits, but Subſtance of the Liquor it ſelf, and leaves you but a thin and flat Drink, hardly balancing your trouble.

A New way to make choice Cider.

Theſe ways of Fermentation by warmth have been made uſe of, and not being done with good Judgment and Skill, did very much prejudice *Cider*, and therefore to be prevented, there being no other Fermentation required in preparing the choiceſt *Cider*, than only expoſing it to the open Air in Earthen Veſſels glazed within.

within. If you can get as many of them as will contain the *Cider* you intend to make, and ſet them in rows on the Ground, and on Benches in your Cellar, or other Repoſitory, and fill them with your *Cider* from the Preſs, and let them ſtand open, or but lightly covered four or five Weeks, or more, till the *Cider* be throughly fine, you may then crane it off into Bottles for uſe; or you may by emptying one of the Veſſels, draw it from the next into that which is empty, and ſo go round till all be drawn off; and then let it ſtand another Month without the Lee, till it be ſuperfine, and then draw it off into Bottles for your uſe. If you live near a Potters, you may have theſe earthen Veſſels; of what ſize you pleaſe, four, five or ſix Gallons, or more; and you may have them made with a Tap-hole, about two Inches from the bottom; and ſo may, with a ſmall Tap, draw it off, without the uſe of the Crane, and leave the Feces behind.

Drawing it off with a Siphon or Crane.

After you have thus purified your Liquor in what Veſſel ſoever, and are unwilling, or cannot well draw it out at a Tap near the bottom, as is uſual, You may draw it from the Feces over the Brim of the

Veſſel, by a *Siphon* made of *Latton*, or of *Glaſs*, which is the beſt, becauſe you may obſerve by your Eye, what impurities aſcend, and avoid them by raiſing or depreſſing your Inſtrument at your diſcretion. The *Siphon* is after this Form, the one end three or four Inches longer than the other, and the hollowneſs of the Pipe in bigneſs, according to the uſe you intend to put it unto, whether out of a great or ſmall Veſſel.

To make this *Siphon* of Glaſs, furniſh your ſelf with a Glaſs Pipe of what ſize and length you pleaſe, and make a Charcoal Fire in ſome open Place, lay down your Glaſs Pipe on the Charcoal, ſo that the Fire may be near the middle of it, remember to lay the Pipe on the Coals before they are very hot, that the Glaſs may heat gradually as the Fire kindles when the Fire burns clear, and the Glaſs is become red hot, then take both extreams in your Hands, and bend it to what Form you pleaſe, holding the bended part over the heat, that it may not cool ſuddenly, but by degrees, to prevent breaking. Thus may you bend any part of it to make it ſuit with your occaſions.

Liquors thus purified, leave behind them on their Superficies, and at bottom, a great quantity of groſs and impure Feces; which if from *Cider*, you may caſt on the preſs'd *Murc*, to meliorate your *Ciderkin*, or Water-*Cider*, if you intend to make any.

Theſe Impurities, which are in great plenty in pulpy Fruit, and alſo in *Raſberries*, *Currants*, &c. are the principal Cauſe of the decaying of thoſe Liquors by their corrupt and acid Nature, exciting the more vivous Parts to a continual Fermentation, as is evident from the Effect, and from the breaking of Bottles (wherein this *Lee* remains) on the motion of a Southerly Air.

After your Liquors are thus purified and drawn off, they are to be encloſed in ſome Veſſel for ſome Weeks or Months, according as the Nature of the Liquor or your occaſions will permit or require. Before that be done, it will not be amiſs to inſert ſome Obſervations concerning Veſſels.

SECT. IV.

Of Veſſels for the keeping and preſerving of Cider.

It hath been no ſmall occaſion of the badneſs of this Liquor, and thereby giving it an ill name, that it hath been uſually ill treated, and entertained (after it hath been indifferently well made) in ill-ſhaped, corrupt, faulty and unſound Veſſels; Vinous Liquors being full of Wild Spirits that eaſily find Vents, through which the Air corrupts the whole remaining Body, and alſo more eaſily, eſpecially the *Cider*, like the Apple, attracting any ill ſavour from the Veſſel. Therefore care is to be taken about the choiſe of them.

It hath been obſerved, that the larger any Veſſels are, the better Liquors are preſerved in them. In ſome forreign Countries Veſſels being made, that one of them will contain many Hogſheads of Wine; which being therein in ſo great a quantity, is preſerved much better than if divided into leſſer Veſſels.

Alſo the form of a Barrel hath been found to be very material: although the vulgar round Barrel be moſt uſeful and neceſſary for

for Tranſportation from one place to another; yet is the upright Veſſel, whoſe Ribs are ſtreight, and the Head about a fourth or fifth part broader than the bottom, and the height equal to the Diameter of the upper part, the beſt form to ſtand in a Cellar. The Bung-hole of about two Inches Diameter, is to be on the top, with a Plug of wood turn'd round exactly to fit into it, near unto which muſt be a ſmall Vent-hole, that after the *Cider* is tunn'd up, and ſtopt at the Bung, you may give it Vent at pleaſure; and that when you draw it forth, you may thereby admit Air into the Veſſel. This Form is preferr'd, becauſe that moſt Liquors contract a Skin or Cream on the top, which helps much to their preſervation, and is in other forms broken by the ſinking of the Liquor, but in this is kept whole; which occaſions the freſhneſs of the Drink to the laſt. This form is deſcribed before in the IV Fig.

It is alſo obſerved, that a new Veſſel made of Oak, tinges any Liquor at the firſt with a brown Colour; wherefore it is convenient thorowly to ſeaſon your new Veſſels with ſcalding Water, wherein you may boyl Apple-pumis if you pleaſe, before you put your *Cider* in them; which when ſo

ſeaſon'd, are to be preferr'd to any that have been uſed, unleſs after *Canary*, *Malaga*, or *Sherry* Wines, or after *Metheglin*; which will much advance the colour and ſavour of your *Cider*: but Veſſels out of which Strong-*Beer* or *Ale* have been lately drawn are to be rejected, unleſs thorowly ſcalded and ſeaſon'd as before, which then will ſerve indifferently well, nothing agreeing worſe with *Cider* than *Malt*; for of *Cider* or Water-*Cider*, boyl'd and added to *Malt*, hath been made a Liquor not at all grateful. Small-Beer-Veſſels well ſcalded, are not amiſs: *White* or *Reniſh*-Wine-Veſſels may do well for preſent drinking, or for a luſcious *Cider*, elſe they are apt to cauſe too great a Fermentation.

A good *Ciderift* will have his Veſſels wherein he puts his pulp or ground Fruit, wherein he preſſes and tuns his Liquor, and wherein he makes his *Ciderkin*, all of them appropriated to that uſe. The Taverns will furniſh him with large Casks very proper for theſe uſes.

For the uſing of theſe Veſſels, between the *Cider* ſeaſons with Beer and Ale, not only prejudiceth the *Cider*, but the uſing of them, for *Cider* injureth very much the next Brewing of Ale or Beer.

If

If your Veſſels be muſty, boyl Pepper in Water after the Proportion of an Ounce to a Hogſhead; fill your Veſſel therewith ſcalding hot, and ſo let it ſtand two or three days; or elſe *Curing muſty Cask.*

Take two or three Stones or more of Quick-lime to ſix or ſeven Gallons of Water, which put into a Hogſhead, and ſtop it cloſe, and tumble it up and down till the Lime be throughly ſlak'd; but the beſt cure is to take them to pieces, and pare away the film that is in the inſide, and when aired ſet them together again.

To make your Cask pleaſant to receive ſo delicate a Gueſt, as your choiceſt *Cider*, You may ſcent it as the Vintners do for their Wines, Thus, Take of *Brimſtone* four Ounces, of *Burn'd Allum* one Ounce, and of *Aqua Vitæ* two Ounces; Melt theſe together in an earthen Pan over hot Coals, then dip therein a Piece of new Canvas, and inſtantly ſprinkle thereon, the Powders of *Nutmegs*, *Cloves*, *Coriander* and *Anniſeeds*, This Canvas ſet on Fire, and let it burn in the Bung-hole, ſo as the Fume may be received into the Veſſel. *Scenting of Cask.*

Glaſs-bottles are preferr'd to Stone-bottles, becauſe that Stone-bottles are apt to leak, and are rough in the Mouth, that *Bottles.*

they are not eaſily uncork'd; alſo they are more apt to taint than the other; neither are they tranſparent, that you may diſcern when they are foul or clean: it being otherwiſe with the Glaſs-bottles, whoſe defects are eaſily diſcern'd, and are of a more compact metal or ſubſtance, not waſting ſo many Corks.

Grinding Glaſs Stopples.

To prevent the charge of which, you may, with a Turn made for that purpoſe, grind or fit Glaſs-ſtopples to each Bottle, ſo apt, that no Liquor or Spirit ſhall penetrate its cloſures; always obſerving to keep each Stopple to its Bottle: which is eaſily done, by ſecuring it with a piece of Packthread, each Stopple having a Button on the top of it for that end. Theſe Stopples are ground with the Powder of the Stone *Smyris*, ſold at the Shops by the vulgar name of *Emery*, which with Oyl will exquiſitely work the Glaſs to your pleaſure.

Firſt grind them rough with coarſe *Emery*, then make them ſmoother with fine,

So if the Mouths of your Bottles be uneven (as uſually they are) you grind them ſmooth, with a Woodden Plug in a Turn, and poliſh them ſmooth, by which means the Corks may be preſerved.

The

The only Objection againſt this way of Cloſure, is, That not giving paſſage for any Spirits, the Liquors are apt to force the Bottles; which in Bottles ſtopt with Cork rarely happens, the Cork being ſomewhat porous, part of the Spirits, though with difficulty, perſpire.

If Glaſs-bottles happen to be muſty, they are eaſily cured by boyling them in a Veſſel of Water, putting them in whilſt the Water is cold, which prevents the danger of breaking; being alſo cautious that you ſet them not down ſuddenly on a cold Floor, but on Straw, Board, or ſuch like. If your Glaſs-bottles be foul, you may cleanſe them with hard Sand, or ſmall Shot, roll'd and tumbled up and down in them with Water, which will alſo take away the Muſtineſs from them.

SECT. V.

Of Tunning, Bottling, and Preſerving Cider.

Barrelling of Cider.

Having your *Cider* purified and prepared in the Tun, and your Veſſels ſeaſoned and throughly dried, and fix'd in their places, then Tun it up into them until the *Cider* be within an Inch or leſs of

of the top of the Veſſel, that there may be ſpace for a Skin or Head to cover it. Be ſure to leave the Bung open, or only covered, two or three days, that the *Cider* may have liberty to finiſh its Fermentation; but if it be ſo clear that it will not again ferment, and that you are willing or intend to keep it long, put in unground Wheat, after the proportion of a Quart to a Hogſhead, which will give it a Head ſufficient to preſerve it. This artificial Head is only where an admiſſion of Air may probably be into the Veſſel.

Other artificial *Lees* there are, that may ſerve for *Cider* as well as for hungry *Wines*. As a Decoction of Raiſins of the Sun, or the Shavings of Reſine Fir-wood; but the beſt addition to preſerve it, is the new *Lees* of *Spaniſh Wines*.

After you have thus cloſed up your Bung, you ought yet to leave open the ſmall Vent-hole only looſely, putting in the Peg, leſt otherwiſe the wild Spirit of the *Cider* force a Paſſage, as I have known it a Week after its Tunning to have heav'd up the Head of the Barrel almoſt to a Rupture; which by the eaſie ſtopping this Vent, and ſometimes opening it, may be prevented until you find it hath waſted

that

that wild Spirit. For the vulgar Advice of Barrelling up *Cider* from the Preſs, and then ſtopping it cloſe, is pernicious to this Liquor, many having ſpoil'd it by this means: The Spirits ſeeking for a Vent, will find it; and the more they are pent, the longer will they be before they are expended; which Vent being neglected by the Ciderift, becomes a paſſage for the beſt Spirits of the *Cider* many times, to its abſolute ſpoiling.

The vulgar Opinion of the ſudden decaying or flatning of *Cider*, is to be rejected, ſcarce any Drink being more eaſily preſerv'd than this; and though much of its Spirits be loſt, yet out of its own Body, whilſt new, may they be again reviv'd, it ſuffering much more by too ſoon detaining its Spirits, than by too lax a cloſure.

Cider preſſed from pulpy or through-ripe or mellow Fruit, having lain long in hoard, is not ſo apt to emit its Spirits as the other, and ſo is more eaſily preſerved.

Stopping of *Cider* with Clay, if you deſign to keep it long, cannot be good; it having ſo ſtrong a Spirit, that it will eaſily raiſe it on every *Southerly* Air; nothing being better than a wooden Plug turn'd fit to the Bung-hole, and covered about

about with a ſingle brown Paper wet, before you wring it into its place.

Bottling of Cider.

Drawing of *Cider* into Bottles, and keeping it in them well ſtopt for ſome time, is a great Improver of *Cider*. This is done after it is throughly purified, and at any time of the Year: If it be bottled early, there needs no addition, it having Body and Spirit enough to retrive in the Bottle what is loſt in the Barrel; but if it hath been over-fermented, and thereby become poor, flat, and eager, then in the Bottling, if you add a ſmall quantity of Loaf-ſugar, more or leſs according as it may require, it will give a new life to the *Cider*, and probably make it better than ever it was before, eſpecially if it were but a little acid, and not eager.

When your *Cider* is thus bottled, if it were new at the bottling, and not abſolutely pure, it is good to let the Bottles ſtand a while before you ſtop them cloſe, or elſe open the Corks two or three days after to give the *Cider* air, which will prevent the breaking the Bottles againſt the next turning of the Wind into the *South*.

The meaner *Cider* is more apt to break your Bottles than the richer, being of a more

more eager nature, and the Spirits more apt to fly, having not ſo ſolid a Body to detain them as the rich *Ciders*. Obſerve, That when a Bottle breaks through the Fermentation of the *Cider*, to open your Corks and give vent, and ſtop them up again a while after, leſt you loſe many for want of this Caution.

Great care is to be had in chuſing good Corks, much good Liquor being abſolutely ſpoiled through the only defect of the Cork; therefore are Glaſs Stopples to be preferr'd, in caſe the accident of breaking the Bottles can be prevented.

If the Corks are ſteep'd in ſcalding Water a while before you uſe them, they will comply better with the Mouth of the Bottle, than if forc'd in dry: alſo the moiſture of the Cork doth advantage it in detaining the Spirits.

Therefore is laying the Bottles ſideways to be commended, not only for preſerving the Corks moiſt, but for that the Air that remains in the Bottle is on the ſide of the Bottle, where it can neither expire, nor can new be admitted, the Liquor being againſt the Cork, which not ſo eaſily paſſeth through the Cork as the Air. Some place their Bottles on a Frame, with

with their Noſes downwards, for that end; which is not to be ſo well approved of, by reaſon that if there be any the leaſt ſettling in the Bottle, you are ſure to have it in the firſt Glaſs.

Placing the Bottles on a Frame, as is uſual, or on Shelves, is not ſo good as on the Ground, by reaſon that the farther from the earth they ſtand, the more ſubject they are to the variation of the Air, which is more rare in the upper part of a Cellar or other Room, than in the lower; and a few Inches will occaſion a great change, unleſs in a Room arched or vaulted with Stone: but where room is wanted, this Inconvenience may be eaſily born withal.

Setting Bottles in Sand is by many not only made uſe of, but commended, although without cauſe, it not adding that coldneſs to the Bottles as is generally expected, being rather of a dry and temperate quality than cold; if there be any convenience in it, it is becauſe it defends them from the too ſudden changes of Air into heat or cold, which in open and not deep Rooms it is often ſubject unto.

The placing of Bottles in Ciſterns of Spring-water, either running or often changed, is without all peradventure the beſt

beſt way to preſerve *Cider* or any other Vinous Liquors. A Conſervatory made where a Recruit of a cool refrigerating Spring-water may conveniently be had, will ſo long preſerve *Cider* until it be come to the ſtrength even of *Canary* it ſelf. Bottles let down into Wells of Water where Pumps are, that the frequent uſe of Buckets may not injure them; or little Vaults made in the ſides of Wells near the bottom, may ſupply the defect of Spring-water in your Cellar. The reaſon why Water is to be preferr'd for ſuch a Conſervatory, is, becauſe the cloſeneſs of its Body admits not of a ſudden rarefaction of Air, as other Materials do, but is generally of an equal degree of coldneſs, and that colder than commonly the Liquor is that is preſerv'd; which ſo condenſeth its Spirits, that they ſeek not any exition or expanſion, but acquieſce in their own proper Body, where they multiply and become more and more mature, by vertue of that innate heat the Liquor received whilſt in its Fruit. For by the ſame reaſon that Cold detains or ſuppreſſeth the Spirits before Fermentation that they cannot act, now after Fermentation doth it keep in the pure and genuine Spirit, otherwiſe apt

to

to exhale, which purifieth and enricheth the Liquor ſo preſerved. *Quære* whether the warmth that is in Wells or deep Springs, in froſty Weather, incommode not theſe Liquors? Alſo *Quære* whether theſe cool Conſervatories prevent not the breaking of Bottles ſtopt with Glaſs Stopples, by the condenſing power of the Water. My ſelf being deſtitute of any Opportunity to make thoſe Experiments, cannot at preſent reſolve theſe *Quæries*.

In ſome Places the conveniency of Water may eaſily be had for ſuch a Refrigeratory, both for the conſtant ſupply of cool Spring-water, and for its evacuation again, which is as neceſſary as its ſupply: and in many places the Ciderift may command a Spring from ſome place a little diſtant from his Refrigeratory, but cannot ſo eaſily be rid of it again; which muſt be as well conſidered of as the other. Therefore if you can conveniently make a Ciſtern in the bottom or on the ſide of your Cellar that will hold Water, either of Stone or Brick well cemented, and if of Brick, plaiſtered with Plaiſter of Paris, or with a Cement made of Linſeed-oyl and Lime newly ſlakned, with a little Cotton-wool beat into it, and can, as occaſion requires, ſupply it with

with a deſcent of cool Spring-water; your way to evacuate the ſame, will be with a ſmall Hand-pump, ſuch as they uſually uſe in ſmall Veſſels at Sea, and may be had in Maritime Towns at an eaſie rate, with which you may pump your Ciſtern or Conſervatory dry once a Week, oftner or more ſeldom, as the warmth or coldneſs of the Air ſeems to require; and ſupply it again from your Spring, or in defect thereof from ſome Well or Pump, whence you draw your Water for other occaſions. But if your Ciſtern be made in the Ground under your Cellar, you need only lay your Brick or Stone in Clay well tempered, and laid thick under the Brick or Stone, and on the ſides of the Ciſtern.

Where you have not the conveniency of Water, or are unwilling to be at the expence, as in ſome places it may require, of making ſuch Conſervatories; there the beſt way is to dig Vaults in your Cellars, under the Level of the bottom, or to make Niches in the Walls near the Ground, and in them place your Bottles leaning: for the more they are remote from the Air, and the more encompaſſed with Stone or Earth, the cooler they will continue, and the leſs ſubject to the inconveniencies that

happen from the mutability of the Ambient Air.

To accelerate maturity in your Bottle-drink, you may place them above Stairs in ſome Room warm'd by the Beams of the Sun; which will much haſten its maturity, and is eaſier performed than any Agitation can be: but thus it will not long continue, and caution muſt be had to your Bottles.

Binding down the Corks of your Bottles in caſe of danger, is not ſo much to be commended, as well fitting them in by full Corks; becauſe the Liquor were better fly the Cork than break the Bottle, which muſt be, in caſe the Cork be tyed down, and the Liquor not well qualified.

Boyling of Cider. In many places they boyl their *Cider*, adding thereto ſeveral Spices, which makes it very pleaſant, and abates the unſavory ſmack it contracts by boyling, but withal gives it a high Colour. This way is not to be commended, becauſe the Juice of the Apple is either apt to extract ſome ill ſavour from the Braſs or Copper, we being not acquainted with any other Veſſels to boyl it in, or the Feces or ſediment of it apt to burn by its adhereing to the ſides of the Veſſel, it being boyl'd in a naked Fire.

But

But if you are willing to boyl your *Cider*, your Veſſel ought to be of *Latten*, which may be made large enough to boyl a good quantity, the *Tin* yielding no bad Tincture to the Liquor. The Veſſel alſo ought to be broad and open, for the more expeditious waſting of the Aqueous and Phlegmatick part of the Liquor, which firſt flies, in caſe the Muſt be newly taken from the Preſs, and the Apples ripened on the Tree, ground as ſoon as gathered, and preſſed as ſoon as ground: For it is not the boyling only, but the ſudden waſting of the Phlegmatick part, that meliorates the remainder; the Spirits in all Liquors retiring and contracting themſelves before fermentation, as in all Muſts; and after fermentation the Spirits become Volatile, which is the reaſon that moſt Liquors are moſt pleaſant after fermentation, and then alſo are they capable of yielding their Spirits by Diſtillation. Putrefaction ſucceeds fermentation, and ſometimes where there is no fermentation, and then the Spirits contract themſelves again: ſuch as are left, for it is the loſs or want of part of the Spirits that begetteth putrefaction, whence *Vinegar*, &c. is produced. For obſerve, how much ſoever you waſte in this evapo-

ration of any ſort of Muſt, or new Wurt, by ſo much is that which remains the ſtronger; and will ſubſiſt the longer, having a greater proportion of Spirits, to the Body that contains it; ſo that you need not be ſo intent to procure Ebullition, as expence of the meaner part of your Liquor. Alſo you may place this *Latten* Veſſel in another Veſſel of Water, or in a thin Bed of Aſhes, to prevent the too fierce heat of the naked Fire; alſo you may keep it ſtirring, which will expedite the Operation. Before it be quite cold, you may ferment or purifie it to what degree you pleaſe.

This *Cider* thus boyl'd and purified, to the expence of the one half, will keep very long, and be exceeding rich and ſtrong, and not ſo ill qualified, as hath uſually been, in caſe you uſe caution in the operation, which is to be preferr'd to thoſe Spicy Additions.

Reſtoring of decayed Cider. It many times happens, that *Cider* that hath been good, by ill management or other accident becomes dead, flat, ſowr, thick, muddy, or muſty; all which in ſome ſort or other may be cured.

Deadneſs or Flatneſs in *Cider*, which is often occaſioned from the too free admiſſi-

on

on of Air into the Veſſel, for want of right ſtopping, is cured by grinding a ſmall parcel of Apples, and putting them in at the Bung-hole, and ſtopping it cloſe, only ſometimes trying it by opening the ſmall vent, that it force not the Veſſel: but then you muſt draw it off in a few days, either into Bottles or another Veſſel, leſt the *Murc* corrupt the whole Maſs; which may alſo be prevented, in caſe you preſs your Apples, and put up only the new Muſt that comes from them on the decayed *Cider*. The ſame may be done in Bottles, by adding about a ſpoonful or two of new Muſt to each Bottle of dead *Cider*, and ſtopping it again. *Cider* that is dead or flat will oftentimes revive again of it ſelf, if cloſe ſtopt, upon the revolution of the year and approaching Summer.

But *Cider* that hath acquired a deadneſs or flatneſs, by being kept in a Beer or Ale Veſſel, is not to be revived, the ſmack of the Beer or Ale being the only cauſe of it, and always predominates.

Honey or *Sugar* mixt with ſome Spices, and added to the *Cider* that is flat revives it much; let the proportion be according as is the diſtemper that requires it.

If *Cider* be acid, as ſometimes it happens by reaſon of the immaturity of the Fruit, too nimble an operation, too great a Fermentation in the Veſſel, or too warm a Situation of your Veſſels wherein it is kept; this ſometimes becomes pleaſant again, in caſe its Lee be yet in the Veſſel, as is ſuppoſed by a ſecond operation on it, but in caſe it doth not, if you add about a Gallon of unground-Wheat to a Hogſhead of it, it will very much ſweeten it, and make it pleaſant. The ſame effect will two or three Eggs put in whole, or a pound of *Figgs* ſlit, produce, as is reported. But the ſureſt remedy is Bottling it with a Knob of *Sugar*, in proportion according to the occaſion.

Wheat boyled till it begin to break, and when cold added to the *Cider*, but not in too great a quantity, and ſtirred into it, helpeth it much; the like doth *Cinnamon* Canes, but the Veſſel muſt be ſtopt cloſe in either.

There is ſome difference betweeen a ſharp or acid *Cider*, and a *Cider* that is eager or turn'd. The firſt hath its Spirits free and volatile, and may eaſily be retriv'd by a ſmall addition of new Spirits, or ſome edulcorating matter; but the latter

ter hath part of its Spirits waſted, and part retired, that all additions are vain attempts to recover it.

If your *Cider* be Muſty, which happens either from the Places the Fruit lay in before grinding, or from the Veſſels through which the Pulp or Muſt hath paſt, or that the *Cider* is contain'd in; the Cure thereof is very difficult. Although in ſome meaſure the ill ſavour of it may be corrected by *Muſtard*-Seed ground with ſome of the ſame *Cider*.

Thick *Cider* is eaſily cured at what Age ſoever, by exciting it to a fermentation, either by the addition of *Muſtard* made with Sack, or by the addition of new Pulp or Muſt, or of rotten Apples; Or (which will do it when all fails) by purifying it with *Iſinglaſs*, or Fiſh-glew, as before is directed.

Racking of *Cider* is much commended by ſome, but the operation is tedious, troubleſom and coſtly, by reaſon of the change of Veſſels of different ſizes, the latter being to be leſs than the former: And therefore not to be endured amongſt true Ciderifts, Purifying the Liquor before Tunning, being much to be preferred.

Preserving Cider by Sulphur.

If the Veſſel before *Cider* be tunned up into it, be fumed with *Sulphur*, it much conduceth to the preſervation of this or any other kind of Liquor: which may be done by dipping a Rag in melted Brimſtone, prepared after the ſame manner as before is preſcribed for Scenting the Cask, and by a Wire letting it down into the Veſſel, being fired, will fill the Veſſel full of Smoak; then take it out, and immediately Tun up your Liquor, which gives it no ill taſte nor ſavour, and is an excellent preſerver of your health, as well as of the Liquor.

But the better way for this operation is, by making a little earthen Pot wherein to burn your Brimſtone, ſo prepared as before; the cover of it to extend in a Pipe about two Foot for your Mouth, and another Pipe to go out of the ſide of the Pot into the Bung-hole of the Veſſel, in which the *Cider* is put to be preſerved: about half way deep into the Liquor, put your Rags dipp'd in Brimſtone, into the Pot, add Fire to it, cover your Pot, blow at your Pipe, which will increaſe the Fire, and drive the Fume into the middle of the Liquor in the Barrel, and alſo fill the Vacancies of the Veſſel; Then ſtop it cloſe, by which means

the *Cider* is impregnated with the Spirit of *Sulphur*, which will give it no alteration, ſave only for its ſalubrity and duration.

Other ways there are for making theſe Matches. As to the melted *Brimſtone* you may add *Cloves*, *Cinnamon*, *Mace*, *Ginger*, and *Coriander-Seeds*,

Or thus, *Brimſtone*, *Orras* Roots and *Maſtick*, of each a like quantity melted all together, and long narrow pieces of new Canvas drawn through it, being lighted and put in at the Bung-hole, or uſed as before with the Pipe, keeps the *Cider* long clear and good, and gives it a pleaſant taſte.

It is evident, that *Cider* by time changes its greeniſh Colour, for a bright yellow, inclining to redneſs.

SECT. VI.

Of making Water-Cider.

It is obſerv'd that many ſorts of Apples thorowly mature, will endure ſome addition of Water, without any prejudice to the Drink, eſpecially in the Iſland of *Jerſey*, where they frequently give it a daſh. This dilution is only with Apples of a mellow and rich Juice, and is neceſſary to help

help its clarification; the *Cider* it self being of too glutinous a Subſtance, and they not acquainted with any other way of attenuating it.

If your Apples be pulpy or mellow, they will yield their Juice with difficulty, unleſs Water be added; but you may preſs them eaſily at firſt, and extract a ſmall quantity of the richeſt Juice, and then add of boiled Water to the remaining Pulp, which after Forty eight hours ſtanding, will yield you ſo rich a Liquor that ſhall exceed moſt *Ciders*, drawn from newly ripened Fruit.

To ſome ſorts of Fruit that are of themſelves acid, crude, or of a thin Juice, dilution is very improper; but if the Water be boil'd, and let ſtand till it be cold, it will be the better; that abating much of its crudity.

Water mixt with the Fruit in the grinding, incorporateth better with the *Cider*, than if added in the Veſſel; and if mixt in the Veſſel, better than if added in the Glaſs. By the Addition of Water can no other advantage be expected than the encreaſe of the Liquor, as we uſually make more Small Beer than Strong, of the ſame quantity of Malt, for the ordinary expence in Oeconomy.

After

After you have preſſed out your *Cider*, you may alſo put the *Mure* up into a large Vat, and add thereto what quantity you think convenient of boil'd Water (being firſt cold again:) if about half the quantity as was of the *Cider* that was preſſed from it, it will be good; if as much as the *Cider*, then but ſmall: let this Water ſtand on it about forty-eight hours, and then preſs it well. That which comes from the Preſs, Tun up immediately, and ſtop it up, you may drink it in a few days. This being the moſt part Water, will clarifie of it ſelf, and ſupplies the place of Small-Beer in a Family, and to many much more acceptable. *Of making Ciderkin or Purre.*

You may amend it by the addition of the Settling or Lee of your *Cider* that you laſt purified, by putting it up on the Pulp before preſſure, or by adding ſome over-plus of *Cider*, that your other Veſſels will not hold, or by grinding ſome falling or refuſe Apples that were not fit to be added to your *Cider*, and preſſing it with this.

This *Ciderkin* or *Purre* may be made to keep long, in caſe you boil it after preſſure, with ſuch a proportion of Hops as you uſually add to your Beer that you intend

intend to keep for the ſame time, and it will be thus very well preſerv'd; but then you need not boil your Water before the adding it to your *Murc.*

SECT. VII.

Of Mixtures with Cider.

There is not any Liquor that hath leſs need of Mixtures than *Cider*, being of it ſelf ſo excellent, that any addition whatſoever maketh it leſs pleaſant: but being ſo neceſſary a Drink for the preſervation of health, and tending to Longævity, it may be the moſt proper Vehicle to transfer the Vertues of many *Aromatick* and *Medicinal Drugs*, *Spices*, *Fruits*, *Flowers*, *Roots*, &c. into every part of Man, beyond any other Liquor whatſoever.

You may make *Hippocras* of *Cider* thus, Take of *Cardamoms*, *Carpobalſamum*, of each half an Ounce, *Coriander*-Seeds prepared, *Nutmegs*, *Ginger*, of each two Ounces, *Cloves* two Drachmes; bruiſe and infuſe them two days in two Gallons of the richeſt ſweeteſt *Cider*, often ſtirring it together, then add thereto of *Milk* three Pints, ſtrain all through an *Hippocras* Bag, and ſweeten it with a Pound of *Sugar Candy*.

With

With it may be made *Juniper-Cider*, by the addition of the *Berries* dried, ſix, eight, or ten to each Bottle in the bottling of it, or elſe a proportionable quantity in the Barrel: the taſte whereof is ſomewhat ſtrange, which by uſe will be much abated.

Ginger may be added with good ſucceſs, it making the *Cider* more brisk and lively than otherwiſe it would be.

Cloves and *Cinnamon* added, not only gives it a fine *Aromatick* flavour, but tingeth it with a fine colour.

But the beſt addition that can be to it, is that of the *Lees* of *Malaga* Sack or *Canary* new and ſweet, about a Gallon to a Hogſhead; this is a great improver and purifier of *Cider*.

Dried *Roſemary* may be added in the Veſſel, and doth not make it very unpleaſing.

Wormwood inbib'd therein, produceth the effect that it doth in *Wine*.

The Juice of *Currants* preſerv'd ſimply, without any Sugar or Water, a few of the clear drops of it, tingeth and matureth early *Cider*, which to ſome might otherwiſe ſeem too luſcious.

The

The Juice of *Rasberries* preserv'd, or the Wine thereof, gives an excellent Tincture to this Liquor, and makes it very pleasant, if the *Cider* be not too new or too luscious.

For cooling Tinctures to *Cider*, the Juice of the *Mulberry* is to be preferr'd.

And next to that, the Juice of the *Blackberry*; both ripening about the time of making *Cider*.

Elder-berries are much commended by some to be prest amongst your Apples, or the Juice of them added to your *Cider*.

But the best way of mixing this Juice with *Cider*, is to take a Pot of *Elder-berries*, when ripe, with Houshold Bread, let the Pot hold about a Gallon of them or more and be covered; Then strain out the Juice which will be thin and clear, and bottle it up for use; two or three Spoonfuls of this mixed in a Quart Bottle of *Cider* at the bottling, makes it of a fine red Colour, pleasant to the taste, and endows it with all the Medicinal Vertues of the *Elder-berry*. This way of baking or decocting of soft Fruits is very effectual, in extracting their Juices.

The *Clove-July-Flower* dried and steep'd in *Cider*, gives it an excellent Tincture and Flavour.

Thus

Thus may the Vertues of any dried Flowers, Leaves, Roots, *&c.* be extracted and convey'd into our bodies by the moſt pleaſant Vehicle that can be obtained.

SECT. VIII.

Of making other ſorts of Wines or Drinks of Fruits.

Of making Perry.

Beſides *Cider*, there are many other curious Drinks that may be prepared out of our *Britiſh* Fruits: As *Perry*, whereof there is a great quantity made yearly in ſeveral places of this Kingdom; and its operation ſo much like unto that of *Cider*, that we need ſay the leſs in this place.

Pears ſhould not be too mellow when they are ground, for then they are ſo pulpy, that they will not eaſily part with their Juice.

If *Crabs* be mixt with *Pears* in grinding, it very much improves the *Perry*; the proportion muſt be with diſcretion, according as the ſweetneſs of the *Pear* requires.

Perry, if well made, and of good *Pears*, will keep equally with *Cider*. The *Boſbury-Pear* is eſteemed the beſt to yield laſting *Perry*.

Although

Although the Planting of Vineyards in this Iſland is not ſo much in uſe as in the more *Southerly* Countries, nor are our Seaſons ſo conſtant for the maturation of the Fruit of the Vine, as they are in Continents of the ſame Latitude, yet may we propagate this Plant to a good effect in ſome warm Situations, and eſpecially on the ſides of Buildings, Walls, *&c.* and where there are any ſtore of them, very good Wine may be made of the great plenty of their Liquor; and much better than any of the *French* Wines uſually imported here, in caſe caution and skill be uſed in its preparation.

The time of gathering Fruit. When you perceive your *Grapes* to be plump and tranſparent, and the Seeds or Stones to come forth black and clear, and not clammy, and the Stalks begin to wither, then gather them, for they cannot be over-ripe; neither will Rain or Froſt injure them, ſo that the weather be dry ſome time before gathering.

Cut them off from the Branches, and not pull them, and in the Moons decreaſe; preſerving them from bruiſes as much as you can.

Making of the Wines. Here in this cold Country they are ſeldom all of a ripeneſs, and the Stalks contain

tain ſomething of crudity in them; therefore it would not be loſt labour to cull or ſeparate the more ripe from the leſs, and from the Stalks, before you preſs out your Wine; by which means ſome have had Wine comparable with the beſt *French* Wines that are preſs'd from the *Grapes* promiſcuouſly; and this *Wine* thus made of ſelected *Grapes*, will laſt ſeveral years, as hath been experienced.

When your Wine is tunned, leave a part of the Veſſel void or empty, and ſtop it up cloſe immediately, and that very well, leſt it loſe its Spirits; which vacancy you may again ſupply after ten or twelve days with other Wine that hath been alſo fermented: which repletion muſt be reiterated as oft as there is occaſion.

If you intend to make *Clarret*, you muſt let your Murc or Chaff of the Red or Black *Grape*, abide in the Muſt ſix or eight days, or as you will have it, more or leſs, ruff or tinctured, before you preſs it out; but in the interim be ſure to cover your Vat cloſe. *Making of Clarret.*

North-winds are reported to be very bad for the ſowring of Wines; therefore be careful to keep them from it.

Purifying of Wine. To purifie Wine, take the thin Shavings or Planings of *Beech*, the Rind being peel'd off, and boil them in Water to abate the rankneſs of them: then dry them throughly; and with theſe may you purifie Wine: about a Peck will ſerve a Hogſhead; which Chips will ſerve often times, being waſhed, dried, and preſerved.

Some meliorate their Wine by preſſing *Raiſins* of the Sun with the *Grapes* a little plumped before-hand, or by boiling half the Muſt an hour together, ſcumming it, and adding it hot to the other half: this meliorates that half that is boiled, and cauſeth a fermentation in the other; but this is left to farther experience.

With well-ripened *Grapes*, diligent ſorting them, eaſie preſſure, and well purifying and preſerving its Juice, *Wine* may here be made in goodneſs and duration equal to the beſt and moſt *Southerly French* Wines that are uſually imported hither, as hath been divers times experienced for ſeveral years ſucceſſively by one that hath produced exeellent *Wine* of ſeveral years preſerving.

For againſt a Wall *Grapes* will ripen very well in moſt years, and the beſt of them ſeparated from the more immature, and

and from the Stalks, yield a luſcious Juice; and thoſe gently bruiſed yield a thin Muſt, that hath of it ſelf but little of the flying *Lee* in it; and that alſo being percipitated or taken off, the Wine will not be ſo apt to ferment; which is the principal cauſe of its ſudden decaying. This *Wine* preſerv'd in your Refrigeratory, will continue good for ſeveral years; its Spirits thereby multiplying and heightning, that makes it equall to thoſe *Wines* that received a far greater degree of maturation in their Fruit more expoſed to the perpendicular Beams of the Sun.

Cherry-wine.

There is ſcarce any Fruit more eaſily propagated than the *Cherry*, nor any Fruit that bears more conſtantly and plentifully, that is a tall and Orchard-Tree: the Fruit whereof yields a fine acid, pleaſant Juice, and mix'd with the more fat and luſcious Wines of *Spain*, make a very good Wine, by the addition of Sugar whereby to preſerve it.

Or the Juice it ſelf, gently preſſed from the Fruit, may, by a convenient addition of Sugar, make a very pleaſant Wine, and durable, if boiled together; but in the boiling caution muſt be had, leſt it attract ſome ill ſavour from the Veſſel.

Plum-wine. This Fruit is alſo eaſie of Propagation, and no doubt but ſome of the more Juicy ſort of them, eſpecially the *Damſin*, would yield an excellent Liquor, but ſcarcely durable unleſs boil'd with Sugar, and well purifi'd, or elſe the Sugar boil'd beforehand in Water, and then added: the Juice of the Plum being of a thick ſubſtance, will eaſily bear dilution. This is eaſily experimented where *Plums* are in great plenty.

Currant-wine. The *Red Dutch-Currant*, or *Corinth*, yields a very rich and well-coloured Juice, being gathered as ſoon as they are through ripe, will yield a Vinous Liquor, which is to be diluted with an equal quantity of Water boiled with refined Sugar, about the proportion of one Pound to a Gallon of your Wine (when mixt with the Water) and after the Water and Sugar ſo boiled together is cold, then mix it with the Juice of the *Currants*, and purifie it with *Iſinglaſs* diſſolv'd in part of the ſame Liquor, or in *White-wine*, as is before directed for the purifying of *Cider*, after the rate of an Ounce to eight or ten Gallons; but boil it not in a Braſs Veſſel, for the Reaſons before-mentioned. This will raiſe a Scum on it of a great

a great thickneſs, and leave your Wind indifferent clear, which you may draw out either at a Tap, or by your *Siphon*, into a Barrel, where it will finiſh its Fermentation, and in three Weeks or a Month become ſo pure and limpid, that you may bottle it with a piece of Loaf-Sugar in each Bottle, in bigneſs according to your diſcretion; which will not only abate its quick acidity that it may as yet retain, but make it brisk and lively.

At the time you Bottle it, and for ſome time after, it will taſte a little Sweet-ſowr, from the Sugar, and from the *Currant*; but after it hath ſtood in the Bottles ſix or eight Weeks, it will be ſo well united, that it will be a delicate, palatable, rich Wine, tranſparent as the Ruby, of a full Body, and in a *Refrigeratory* very durable; and the longer you keep it, the more *Vinous* will your Liquor be.

Moſt other Fruits, as *Grapes*, *Gooſeberries*, *Cherries*, and generally all ſorts of *Plums*, &c. by hanging long on the Trees, after they are ripe, become ſweeter; but *Currants* become more acid; ſo not then ſo fit for Wine, as when they are juſt through ripe, but will make admirable *Vinegar*, the moſt grateful in the beſt of

Sauces of any other acid Juices; The Wine unleſs you keep it till the Sugar and the Liquor are incorporated throughly, is not very grateful to the Stomach.

Gooſeberry-Wine. The *Gooſeberry*-Tree being one of the greateſt Fruit-bearing Shrubs, yields a pleaſant Fruit, which although ſomewhat luſcious, yet, by reaſon of its groſs Lee, whereof it is full, it is apt to become acid, unleſs a proportion of Water ſweetned with Sugar (but not with ſo much as the other acid Liquors) be added unto it; this Liquor of any other will not bear a decoction, becauſe it will debaſe its colour from a Wine-colour, to a brown not pleaſant in Whitiſh Wines or Liquors.

Rasberry-Wine. There is no Shrub yields a more pleaſant Fruit than the *Rasberry*-Tree, which is rather a Weed than a Tree, never living two years together above-ground. Nor is there any Fruit that yields a ſweeter and more pleaſant Juice than this, which being extracted, ſerves not only to add a flavour to moſt other Wines or Liquors, but by a ſmall addition of Water and Sugar boil'd together, and when cold, added to this Juice, and purified, makes one of the moſt pleaſant drinks in the World.

Having

Having given you a taſte of moſt Wines made by preſſure of the Juices out of the Fruits: You may alſo divert your ſelf with the Blood of the Grape, or any other of the before-mentioned limpid Liquors, ting'd with the flavour and ſpirituous haut-guſt of other Fruits that cannot ſo eaſily and liberally afford you their Juices. As of the *Apricock*, which ſteep'd in Wine, gives the very taſte of the Fruit; alſo *Clove-July-Flowers*, or other ſweet-ſcented Flowers doth the like. You may alſo make experiment of ſome ſorts of *Peaches*, *Nectorines*, &c. what effect they will have upon thoſe ſorts of Drinks. *Apricock-Wine.* *Clove-July-Flower-Wine.*

SECT IX.

Of making ſome other Drinks, or Wines uſually drank in this Iſland.

Beſides ſuch Drinks or Liquors that are commonly made of the Fruits of Trees or Shrubs, there are ſeveral other pleaſant, wholſom, and neceſſary Drinks, made of Trees, Leaves, Grains, mixtures of ſeveral things, that are not to be omitted or wanting in your Conſervatory, to make it compleat.

As *Metheglin* or *Hydromel*, that is prepared out of *Hony* extracted by the diligent Bee out of ſeveral Vegetables, being one of the moſt pleaſant and univerſal Drinks the Northern part of *Europe* affords, and was in uſe among the Antients that inhabited theſe colder Countries, before Wine or other Vinous Liquors became ſo generally uſed; and is yet in ſeveral cold Countries the moſt excellent Drink that they have of their own making, where Wines and other Vinous Liquors are not ſo eaſily nor well prepared. The Subject whereof it is made, *Honey*, being to be had in every part of *Europe*, from the moſt Southerly Parts of *Spain*, *Italy*, &c. to the moſt Northerly. It being affirm'd by *Hiſtoriographers*, that there is *Honey* within the *Artick*-Circle, or Frozen Zone.

Thoſe that liv'd formerly in the more Southern Parts (as *Pliny* reports) made a Drink compounded of *Honey* and tart Wine, which they term'd *Melitites*, by the addition of a Gallon of *Honey* to five Gallons of their Wine, making thereof, no doubt, a very pleaſant Liquor: to which *Virgil* ſeems to allude, when he ſings

Dulcia

Dulcia mella premes; nec tantum dulcia quantum
Et liquida, & durum Bacchi domitura saporem.

——— Honey you may press,
Not only sweet, but shall be purely fine,
And fit to qualifie your sharpest Wine.

This Drink was also called *Oinomel* by *Dioscorides*; and others in that Age.

In *Swedeland*, *Muscovia*, *Russia*, and as far as the *Caspian* Sea, they make great store of this Drink, and *Meth*, which is a smaller sort of it, made of the worst *Honey*, and of the refuse of all the rest.

This *Metheglin*, or *Hydromel*, they prefer in those cold Countries before any other Drinks, preparing it diversly to please their Palates; The best Receipt whereof that I have observed to be made by them is thus.

They take *Rasberries* which grow plentifully in those Parts, and put them into fair Water, for two or three Nights (I suppose they bruise them first) that the Water may extract their Taste and Colour. Into this Water they put of the purest *Honey*, in proportion about one Pound of *Honey* to three

or

or four of Water; according as they would have it ſtronger or ſmaller. Then to give it a fermentation, they put a Toſt into it dipp'd in the Dregs or Grounds of Beer; which when it hath ſet the *Metheglin* at work, they take out again, to prevent any ill ſavour it may give; if they deſire to ferment it long, they ſet it in a warm place; which when they pleaſe to hinder or ſtop, they remove it into a cool place; after it hath done fermenting, they draw it off the Lee for preſent uſe; to add to its excellency, they hang in it a little Bagg wherein is *Cinnamon*, *Grains* of Paradice, and a few *Cloves*. This may do very well for preſent drinking. But if you would make your *Metheglin* of the ſame Ingredients, and to be kept (time meliorating any ſort of Drinks) you may preſerve your Juice of *Rasberries* at their proper Seaſon. And when you make your *Metheglin*, decoct your *Honey* and Water together, and when it is cold, then add your Juice of *Rasberries* which was before prepared to keep, and purifie your *Metheglin* by the means before preſcrib'd, or ferment it, either by a Toſt dipped in Yeſt, or by putting a ſpoonful of Yeſt unto it, to which you may add the little Bagg of Spices before-mentioned.

Then

Then let it ſtand about a Month to be thorowly purified, and then bottle it, and preſerve it for uſe, and it may in time become a curious Drink.

They alſo ſteep *Rasberries* in *Aqua-Vitæ* twenty-four hours, and add that to their *Hydromel*; which is a great amendment of it.

The ſame People alſo extract the Juices of *Strawberries*, *Mulberries*, and *Cherries*, and make the ſame uſe of them in their *Hydromel*, as they did of the *Rasberries*.

Many Receipts are handed from one to another, for the making of *Metheglin* or *Hydromel*, wherein are ſeveral green Vegetables preſcribed to be uſed, as *Sweet-Bryar* Leaves, *Thyme*, *Roſemary*, *&c.* which are not to be uſed green, by them that intend to make a quick, brisk and lively Drink; green and crude Herbs dulling and flatning the Spirits of the Liquor to which they are added, as you will find if you add green *Hops* inſtead of dry to your Beer: neither will any green Herb yield its Vertue ſo eaſily as when dry. But Spices and *Aromatick* Herbs are very neceſſary to add a flavour to the *Metheglin*, and abate its too luſcious taſte.

It

It is uſually alſo directed, that the *Metheglin* when boiling, ſhould be ſcummed, to take off the Filth that ariſeth from it in the decoction: which is not ſo neceſſary as it is pretended to be; for that Scum remaining behind, will be of uſe, and a help to its Fermentation, and makes the Liquor afterwards to become the more limpid; and doth not unite again with it, as is vulgarly believed, it being a Maxime in *Philoſophy*, that Feces once ſeparated, will never re-unite.

So that if you take *Honey*, *Live-Honey*, that naturally runs from the Combs, (and that from Swarms of the ſame year is the beſt) and add ſo much *Honey* to clear Spring Water, that when the *Honey* is diſſolved thorowly, an Egg will not ſink to the bottom, but eaſily ſwim up and down in it; Then boil this Liquor in a Braſs, or rather Copper Veſſel, for about an hour or more, and by that time the Egg will ſwim above the Liquor, about the breadth of a Groat, then let it cool; the next morning you may barrel it up, adding to the proportion of fifteen Gallons an Ounce of *Ginger*, half an Ounce of *Cinnamon*, *Cloves* and *Mace* of each an Ounce, all groſly beaten; for if you beat it fine, it will always float in your *Metheglin*,

Metheglin, and make it foul; and if you put them in whilſt it is hot, the Spices will loſe their Spirits. You may alſo if you pleaſe add a little ſpoonful of Yeſt at the Bung-hole to encreaſe its fermentation, but let it not ſtand too cold at the firſt, that being a principal Impediment to its Fermentation; as ſoon as it hath done working, ſtop it up cloſe, and let it ſtand for a Month, then draw it into Bottles, which if ſet in a Refrigeratory, as before was directed for *Cider*, it will become a moſt pleaſant Vinous Drink, daily loſing its luſcious taſte; the longer it is kept, the better it will be.

By the floating of the Egg you may judg of its ſtrength, and you may make it more or leſs ſtrong as you pleaſe, by adding of more *Honey*, or more Water.

By long boiling it is made more pleaſant and more durable.

Of Birch-Wine.

As well in theſe Northern Parts of *Europe*, as in many Places of *Aſia* and *Africa*, may we extract the Blood of Trees themſelves, and make them drinkable. The delicacy of our Liquors made of Fruits and Grains, very much abates the eager proſecution of ſuch Deſigns, yet the pleaſantneſs and ſalubrity of the Blood of ſeveral Trees, have given encouragement, to ſome *Virtuoſi*,

Virtuoſi, to beſtow their labour and skill on them, and not in vain. The *Sycomore* and *Wallnut*-Trees are ſaid to yield excellent Juice, but we in *England* have not had ſo great experience in any, as in that of the *Birch-tree*.

Which may be extracted in very great quantities where thoſe Trees are plenty, many Gallons in a day may be gathered from the Boughs of the Tree by cutting them off, leaving their ends fit to go into the Mouths of the Bottles, and ſo by hanging many Bottles on ſeveral Boughs, the Liquor will diſtil into them very plentifully.

The Seaſon for this work, is from the end of *February* to the end of *March*, whilſt the Sap riſes, and before the Leaves ſhoot out from the Tree; for when the Spring is forward, and the Leaves begin to appear, the Juice, by a long digeſtion in the Branch, grows thick and coloured, which before was thin and limpid. The Sap alſo diſtills not in cold Weather, whilſt the *North* and *Eaſt*-winds blow, nor in the night time, but very well and freely when the *South* or *Weſt*-winds blow, or the Sun ſhine warm.

That

That Liquor is beſt that proceeds from the Branches, having had a longer time in the Tree, and thereby better digeſted and acquiring more of its flavour, than if it had been extracted from the Trunk.

Thus may many Hogſhead ſoon be obtain'd: Poor people will (where Trees are plenty) draw it for two Pence or three Pence the Gallon. To every Gallon whereof, add a Pound of refined Sugar, and boil it about a quarter or half an hour; then ſet it to cool, and add a very little Yeſt to it, and it will ferment, and thereby purge it ſelf from that little droſs the Liquor and Sugar can yield: then put it in a Barrel, and add thereto a ſmall proportion of *Cinnamon* and *Mace* bruiſed, about half an ounce of both to ten Gallons; then ſtop it very cloſe, and about a Month after bottle it; and in a few days you will have a moſt delicate brisk *Wine*, of a Flavour like unto *Rheniſh*. Its Spirits are ſo volatile, that they are apt to break the Bottles, unleſs placed in a Refrigeratory, and when poured out, it gives a white Head in the Glaſs. This Liquor is not of long duration, unleſs preſerved very cool.

Inſtead of every pound of Sugar, if you add a quart of *Honey*, and boil it as before,

and

and adding Spice, and fermenting it as you ſhould do *Metheglin*, it makes an admired Drink, both pleaſant and medicinable.

Ale brewed of this Juice or Sap, is eſteem'd very wholſom.

Chocolatte. I cannot paſs by naming this famous Liquor *Chocolatte*, that was in a manner Meat and Drink to a great part of *America*, and is very much uſed in moſt Parts of it. The principal Ingredient is the Kernel of the *Cacao-nut*, a Fruit growing in thoſe Parts very plentifully, yet in ſo great eſteem amongſt them, that it was amongſt the Natives as their Coin.

There grow ſometimes thirty or forty of them in a Husk. The nature of them is aſtringent, yet ſtrengthning and nouriſhing. This Kernel being ground fine by a *Molinet*, and ſo reduced to a Liquidity gives it the name of *Chocolatte*, *Atte* in the *American* Language ſignifying Water.

To this Fruit they add *Achiote*, which is made of red Kernels or Grains growing in round Husks on a Tree there by decocting them to a Pap, whereof they make Cakes. Alſo they add *Maiz*, a Grain growing in that Country; and *Macaxochite*, a kind of Pepper, which tempers the cooling property of the other Ingredients: They mix

therewith

therewith the Flowers of the Tree *Xochinacatlis*, and *Tlilxochitle*, and a Gum that drops from a Tree they call *Holquahuitle*, which have excellent Virtues with them; of all which the *Amercians* compoſe a pleaſant Drink, by decocting the ſame in Wine, or Milk, or other Liquidities: And without queſtion, *Kernels*, *Grains*, and *Flowers* may here be found, that may make a counterfeit of it in taſte, and equal to it in virtue. *Quære*, whether the Kernel of the *Wallnut* may not ſupply the defect of the *Cacao*, if well ground.

Notwithſtanding that objection, that the Kernel of a *Wallnut* will retain its taſte amongſt whatever other Materials it be uſed; yet may time wear out that taſte, and render it more pleaſant, as we may obſerve in the ſavour that proceeds from Malt burn'd on the Kiln, *&c.* that the Beer or Ale will become more pleaſant by keeping it, ſo will Tabacco that is hot in the mouth become more mild by age.

Various are the ways that the *Amercians* uſe in Compounding the Cakes to make this Excellent Liquor, as was obſerved by that great Scrutiniſt Mr. *Gage*, in his Survey, of the Weſt-*Indies*, where ſome put into it black Pepper, which he ſaith is too hot and

dry; but the long red Pepper called *Chile* is good, which although it be hot in the mouth, yet in the operation is cool and moiſt.

Some compound with it, *White Sugar*, *Cinnamon*, *Cloves*, *Anniſeed*, *Almonds*, *Hazel Nuts*, (or rather *Filberds*) *Orejuela*, *Bainilla*, *Sapoyall*, *Orange-flower-water*, ſome *Muſk*, and as much of *Achiotte* as will make it look of the colour of a red Brick. But for the due proportions of theſe Ingredients they muſt be added according as the nature of thoſe that are to receive it requires: For ſome or other of theſe ingredients being of another nature than is the Nut it ſelf, may be ſo increaſed in proportion that it may over-ballance whatever inconvenience or ill effect may be occaſioned by the Aſtringent nature of the Nut.

There is no doubt but out *Wallnuts* or *Filberds*, with the ſame correcting Ingredients, may make an excellent Liquor, near, if not equal, to the famous *Chocolatte*, *Wallnuts* and *Filberds* being cleanſed from their Pill or Rind that covers them, are of an oily nature, and aſtringent as is the *Cacao*. We want only the knowledge of thoſe things that are mentioned here by the names of *Orejuela*, *Bainilla*, and *Sapoyall*,

all, or what may ſupply their natures and properties.

Another Receipt is in the ſame Survey delivered to this effect, To every hundred of *Cacao* Nuts, take two Cods, or Pods, of *Chile*, a handful of *Anniſeeds* and *Orejuela*'s, and two of the Flowers called *Mecha-ſuchill*, (by which its probable is intended *Tlilxochitle*, for great differences we find in the names of ſuch things that are proper to that Country, which are written according to the various apprehenſions of the language of thoſe Natives by the Relators) or *Bainilla*, or inſtead of this, ſix Roſes of *Alexandria* beat to Powder, (*Alexandrian Roſes*, I have not heard of, but if *Auſtrian* Roſes are here intended, they are of a dark red colour on one ſide of the leaf, like unto the Flowers of the *Tlilxochitle*) two drams of *Cinnamon*, of *Almonds* and *Hazel Nuts* (or *Filberds*) of each a dozen, of white *Sugar* half a pound; and of *Achiotte* enough to give it colour. If you deſire to have a high Scent with it, then you may uſe *Cloves* and *Muſk* and *Orange* Flower Water in it, which are much uſed in the *Weſt-Indies*, but ſome leave them out.

Some put in *Maiz*, or *Paniſo*, a Grain there growing, which is windy, and added

only to encreaſe the Bulk of it, for the Makers and Sellers advantage.

Cinnamon is eſteemed one of the beſt ingredients; it is hot and dry in the third degree, provokes *Urine*, comforts the *Kidneys* and *Reins* of thoſe that are troubled with cold Diſeaſes, and is good for the *Eyes*, according to this *Diſtich*,

Commoda & Urinæ, Cinamonum, & Renibus affert
Lumina clarificat, dira Venena fugat.

Cinnamon helps Urine, cleanſeth the Eyes,
Purgeth the Reins, from it all Venom flies.

Achiotte is piercing and attenuating, good for ſhortneſs of Breath, and ſtoppage of Urine; and therefore a very excellent Corrector of the *Cacao*, or of *Wallnuts*, or *Filberds*.

The meaner ſort of *Indians* make *Chocolatte*, only with *Cacao*'s, *Achiotte*, *Maiz*, and a few *Chiles*, with a little *Anniſeed*, where the proportion of *Cacao*'s exceeds all the other Ingredients. In this are *Achiotte* and *Chile* the great Correctors of the *Cacao*.

In

In the Confection of theſe Cakes all the Ingredients are to be dryed (except the *Achiotte*) and beaten, or ground in a Stone Mortar, or on a broad Stone; but you muſt be cautious that you over dry them not, leſt you waſte their Spirits or oily parts.

The *Cinnamon*, *Pepper*, and *Anniſeed*, may be firſt beaten, each of them by it ſelf apart, and then the Nuts by little and little beat, always ſtirring them.

Then mix all the Ingredients together, and beat them warm, but not hot, and mix the *Achiotte* with them in the beating.

You muſt remember to ſearce all the Ingredients except the *Cacao*, and the *Achiotte*.

In this warm mixture you will find all to be almoſt Liquid, then make it up, and when it is cold it will be hard: As it cools you may either make it up in *Rolls*, or in *Molds* made for that purpoſe; or you may drop it on Paper in ſmall round Cakes, it will ſtick to Earth or Wood.

There are very good Rolls or Cakes of *Chocolatte* made in *England*, yet are the *Spaniſh* eſteemed the beſt, becauſe they are ſuppoſed to have the moſt skill and experience, and having the Materials in con-

ſtant returns from *America*, but I have found but little difference between the beſt *Engliſh* and the beſt *Spaniſh*.

To adapt this for your Pallate, it may be done ſeveral Ways, ſome ſlice or ſcrape it fine, and boyl it in Water, only with a little Sugar; others mix half Water and half Milk, and boyl it, and then add the powdered *Chocolatte* to it, and boyl them together. Others add Wine and Water: every way is very good; but be ſure whilſt it is boyling, keep it ſtirring, and when it is off the fire, whirr it with your hand Mill, That is, it muſt be mixt in a deep Pot of *Tin*, *Copper*, or *Stone*, with a Cover with a hole in the middle of it, for the handle of the Mill to come out at, or without a Cover. The Mill is only a *knop* at the end of a ſlender handle or ſtick, turned in a Turners Lathe, and cut in Notches, or rough at the end; they are ſold at the Turners for that purpoſe: This being turned between your Hands, whilſt the Pot is over the fire, and the rough end in the Liquor, cauſes an equal mixture of the Liquor with your *Chocolatte*, and raiſes a head or froth over it; then pour it out for uſe in ſmall Diſhes for that purpoſe.

The proportion of *Chocolatte* to your Liquid

Liquid matter, muſt be referred to your diſcretion, where there is only water more, and where water and milk leſs; you muſt add a convenient quantity of Sugar in the mixture. Theſe Cakes of *Chocblatte*, being kept in a dry place, will keep many years without any damage, but moiſture is very injurious to them.

In *China*, plentifully grows a Plant they call *Thea*, on a Shrub much like unto our *Mirtle-Tree*, which bears a Leaf that the *Chineſes* gather in the Spring one by one, and immediately put them to warm in an Iron Kettle over the fire; then laying them on a fine light Mat, roll them together with their hands. The Leaves thus roll'd are again hang'd over the fire, and then roll'd cloſer together till they are dry, then put up carefully in Tin Veſſels, to preſerve them from moiſture. Thus they prepare and preſerve their beſt Leaves that yield the greateſt rates, but the ordinary they only dry in the Sun; but in the ſhade is doubtleſs much better, the Sun having a great power to attract the vertue out of any vegetable after its ſeparation from its Nouriſher. *Tea.*

Boyl a quart of clean water, and then add to it a few of theſe dry Leaves,

which you may take up at once between the tops of your fingers, and let them thus ſtand in a covered Pot two or three minutes, in which time the Leaves will be ſpread to their former breadth and ſhape, and yield their bitter, yet pleaſant taſte. This Liquor you may, if you pleaſe, edulcorate with a little Sugar, and make it an acceptable Drink.

It's probable ſome Engliſh Plants may yield a Leaf that may, thus ordered, make a pleaſant and wholeſome Drink. Several do uſe the Herb *Betony*, *Sage*, and other Herbs, after the ſame manner.

Mr. *Gage* in his Survey of the *Weſt-Indies* commends a Drink they there call *Atolle*, which is made of the Flower of *Maiz* boyled thick, with ſome addition of *Chile*, or long Pepper, *Cinnamon*, *Sweet-water*, *Amber* or *Muſk*, and *Sugar*. The Flower of any of our *Engliſh* Grains, may, thus ordered, make a pleaſant Drink.

CHAP.

CHAP. VI.

Of the Profits that may ariſe from propagating and preparing the ſaid Trees and Liquors, with the Uſes and Vertues of them.

SECT. I.

Of the Profits ariſing thereby.

WE all very well know that *Advantage* is the great Mark aim'd at by moſt, and the Haven to which the greater part of mankind ſteer their Courſe. It is that which makes the toil and labour of ſo many ingenious and induſtrious Men become eaſie and pleaſant to them, and makes the Husbandman wait with ſo much patience for his long expected Crop; ſo that it is the profit and advantage that is to be expected from theſe Plantations that muſt encourage our Country-men to undergo the Pains and Expence that theſe will neceſſarily require; part of which advantages are before already in general toucht at, but the more particular thoſe which are moſt to be reſpected.

I am unwilling to trouble you with ſo exact an Account as may be taken, how many greater and leſſer Trees ſhould be planted on an hundred or one thouſand Acres of Land, at ſo many Foot and Inches diſtance, like what of late hath been publiſhed to the World, by an account to an *Acorn*, how many of them will plant one thouſand Acres of Land at a foot diſtance, *&c.* having more of nicety than diſcretion in it; only you may conclude, that one hundred *Apple-trees* may be planted in an Acre of Ground at about twenty foot diſtance; which is a good ſize for the *Red-ſtreak*, that Tree never growing very large: the greater diſtance you plant them at, the fewer will be required: Conſideration alſo muſt be had to the goodneſs of the Land; a dry hungry Soil requiring more Trees than a more liberal, becauſe the Trees will rarely be very large; and the more they ſhadow the Ground, the better, as before was obſerved.

The Rates and Prizes of Planting One hundred of theſe Trees, are alſo eaſily to be computed; you may have them at the Gardeners, brought home, planted, and ſtaked, if they require it, for about Five Pound the hundred.

The

The yearly Profit of the Herbage or Tillage of this Acre of Ground for the firſt ſeven years after plantiug, may well be employed in digging about the Roots of the Trees, carrying of convenient and proper Soil or Compoſt for them, and maintaining the Fences, paying Duties, *&c.*

At Seven years end, theſe One hundred Trees may, one Tree with another, yield a Buſhel of Apples each Tree: for although it is not to be denied, but that ſome of them may have periſhed, and others, as yet but young, raiſed in their Places, yet may ſome of theſe Trees at Seven years growth, bear two or three Buſhels, and ſome a Buſhel and a half, which may in the whole make One hundred Buſhels, which at ſix pence *per* Buſhel is fifty ſhillings; the Herbage then will be worth at leaſt twenty ſhillings *per Annum*, although the Ground were worth leſs before it was planted: The eighth or ninth year your Trees may, one with another, and one year with another, yield you at leaſt two or three Buſhels on a Tree, and ſometimes more; which at ſo low a rate, your five Pound firſt expended, and the forbearance of the Profit of your Land, and Intereſt of your Money for ſeven years, will bring you in at

at the leaſt five pound *per Annum*, the Herbage being ſtill allowed for the maintenance of your Plantation.

But if a good Fruit-year happen, and your One hundred Trees yield you four or five hundred Buſhels of Fruit, and thoſe worth twelve pence or eighteen pence the Buſhel, it will, in one year, more than retaliate all your paſt labour, charge, and loſs.

The like Calculation might be made of the Profits ariſing from the propagating of ſeveral other ſorts of the before-mentioned Fruits; but he that underſtands the method of planting them, will eaſily compute the advantage.

SECT. II.

Of the Uſes of the ſaid Vinous Liquors.

Beſides, thoſe well-known Uſes of the Drinks before diſcourſed of, they are capable of being converted unto other very neceſſary Uſes at ſuch times as either the Countrey is full ſtocked with it, or that you have any of it that may not be ſo pleaſant and drinkable as you deſire.

Of making Brandy. For then you may, after due fermentation, extract *Spirits*, vulgarly called *Brandy*,

dy, in great plenty, and very excellent, quick, and burning.

It being uſual for *Cider*, when old, to burn over the Fire as *Claret*, or other *French* Wine: for the older any Liquor is, if well kept, the more Spirits it yields. *Cider* alſo hath been obſerved to yield an eighth part of good *Spirit* at an indifferent age; but if cloſe kept in a Refrigeratory for a year or two, it will yield much more.

Alſo ſome ſorts of *Cider* yield a greater plenty of Spirits than others.

In *France* they make a very conſiderable advantage of the Spirits they diſtil out of their bad Wines, and refuſe-Grapes; which may as well be done here out of our bad *Cider*, and eſpecially out of a Liquor that may be preſſed out of *Crabs*, when thorow Ripe, and Mellow; it being obſerved, that the rougheſt Fruit yields the moſt Spirits.

Perry is obſerved to yield more Spirits than *Cider*, although *Perry* be the weaker Liquor and thinner of Body. The ſame is obſerved of *Nants* Wines, although ſmaller than thoſe of *Bordeaux*, yet yield more and better Spirits; the reaſon may be, that they part with their Spirits more eaſily, having thinner Bodies; as ſome thinner

thinner *Cider* made of ordinary Fruit, breaks more Bottles than the Rich *Red-ſtreak*.

Of making Vinegar. Beſides the great advantage that may be made as aforeſaid, of the unpalatable Liquors. In caſe they have loſt their Spirits, as it is uſually term'd, or rather that their Spirits are contracted or fixed, that they riſe not in diſtillation from the more Phlegmatick Parts; Yet will theſe, or the moſt part of theſe Vinous Liquors make *Vinegar*, as hath been often experimented.

Vinegar of Cider. Take *Cider* good or bad, and put it up upon the *Rape*, as the *French* do their bad Wines, and it will produce excellent *Vinegar*, ſuch that bears the name of *White-Wine-Vinegar*, and ſhall have a good colour and taſte.

Currant Vinegar. Take the Juice of Red-*Currants* through Ripe, and add thereto an equal quantity of Water, and let it ſtand in the Sun about three or four Weeks in a Barrel with the Bung-hole covered with a Tile-Shard only: then draw it off its Lee, and you have a delicate red *Vinegar*, fit for moſt Culinary Uſes; you may make it of the Juice alone, without any addition of Water: but I have obſerved the mixt to be the ſharpeſt. This alſo may you paſs through the

the *Rape*, or a few *Malaga-raiſins* old and rotten will ſerve, and doubtleſs it will be much the better.

The *Rape* our Vinegariſts make uſe of, they have out of *France*, it being only the Husks of Grapes cloſe preſſed, which have contracted an acidity, and is of the nature of *Leaven*, or *Teſt*; which uſed in an over-great quantity, ferments even to an acidity. It is yet, I ſuppoſe, to be experimented, whether our *Engliſh* Grapes, or ſome other Fruit, will not make a *Rape* equal in Vertue to the *French*, which is ſomewhat difficult to obtain. *Rape.*

SECT. III.

Of the Medicinal Vertues of Fruits, and Drinks made of them.

It is not to be expected that I ſhould here give you an exact account of the Effects theſe Fruits and Wines have on human Bodies, it more becoming a Graduate in the Medicinal Science. But to abate what any may enviouſly object againſt the ſalubrity of them, and to encourage our Country-men in the uſe of them, I ſhall here give you what have been generally obſerved

obſerved to be the Virtues of ſeveral of our Country Fruits and Wines.

Of Gardens and Orchards.

As to Gardens and Orchards themſelves, they have been eſteem'd the pureſt of human Pleaſures, and the greateſt refreſhments of the Spirits of Man; for the Exerciſes of planting, grafting, pruning, and walking in them, very much tendeth to Salubrity, as alſo doth the wholſom Airs found in them, which have been experienced not only to cure ſeveral Diſtempers incident to our Nature, but to tend towards the prolongation of Life.

For nothing can be more available to Health and long Life, than a ſedate quiet Mind, attended with theſe Rural Delights, a healthful Air, and moderate Exerciſe, which may here be found in all Seaſons of the year.

Thrice happy they who theſe delights purſue,
For whether they their Plants in order view,
Or overladen Boughs with props relieve.
Or if to forreign Fruits new names they give,
If they the taſte of ev'ry Plum explore,
To eat at ſecond courſe, What would they more?

What

What greater happineſs can be deſir'd,
Than what by theſe Diverſions is acquir'd?

Rapinus.

The Fruits of the Earth, and eſpecially of Trees, were the firſt Food ordained for Man to eat, and by eating of which (before Fleſh became his Meat) he lived to a far greater Age, than ſince any have been obſerved to have lived. And of all the Fruits our *Northern* Parts produce, there's none more edible, nor more wholeſom, than Apples; which by the various preparations of the Cook, are become a part of our Table-entertainment almoſt throughout the year, and are eſteem'd to be very temperate and nouriſhing. *Of Apples and Cider.*

They relax the Belly, which is a very good property in them; but the ſweet more than the ſharp.

They help Concoction, eaten after Meat with a little Bread: you may be confident that an Apple eaten after Supper, depreſſeth all offenſive Vapours, that otherwiſe would offend the Head, and hinder ſleep.

Apples roſted, ſcalded, or otherwiſe prepared, according to the skill of the Operatour, are good in many hot Diſeaſes, a-

gainſt *Melancholy*, and the *Pleuriſie*; the decoction of them alſo with the Pulp thinly mixt, cures the painful *Strangury* or difficulty of *Urine*, and *Running of the Reins*; and edulcorated with Sugar, is good to abate a tedious *Cold*.

Of Cider. But *Cider* is much to be preferr'd, it being the more pure and active part ſeparated from the impure and feculent; and without all peradventure, is the moſt wholeſom Drink that is made in *Europe* for our ordinary uſe, as before is obſerved.

For its ſpecifick Vertues, there is not any Drink more effectual againſt the *Scurvy*. It is alſo prevalent againſt the *Stone*, and by its mundifying Qualities, is good againſt the Diſeaſes of the *Spleen*, and is eſteem'd excellent againſt *Melancholy*.

Of Pears. *Pears* are near of a Nature with *Apples*, and are of as great uſe in the Kitchin and Conſervatory: they nouriſh more, eſpecially the *Warden*, which baked, and well ſweetned with Sugar, is held to be one of the beſt Reſtoratives to a Conſumptive Man.

Of Perry. The Wine made of them is more full of Spirit than that of the *Apple*, and eſteem'd a greater Cordial.

The

The Uſes and Virtues of *Grapes* and their Wine, are ſo generally known, that it's needleſs to mention them. *Of* Grapes.

Although *Quinces* yield no Vinous Juice pleaſant to the Palate, yet are they not to be rejected in our Plantation or Vineyard, for their excellency in the Kitchin and in the Conſervatory. *Of* Quinces.

Theſe Fruits, any ways preſerved or prepared, are an excellent aſtringent and corroborating Medicine.

The *Cherry* is a moſt innocent Fruit, and rarely hurts any, unleſs eaten in too great a quantity. *Of* Cherries.

The Wine made of them is a very pleaſant and proper Wine for the Summer-ſeaſon, cooling, ſtrengthning, and ſtirring up a good Appetite to Meat.

Plums are uſeful in the Kitchin, and many ſorts of them excellent to preſerve. *Of* Plums.

Eaten raw, are cooling, and hurt not, unleſs in too great a quantity.

The Wine of them being well purified, is near in Vertue to *Cherry-wine.*

Our Engliſh *Currants* are ſharp, but very cooling, aſtringent, and corroborating, and very wholeſom, eaten raw: eating too many of theſe is not to be feared, they *Of* Currants.

wearying the Mouth, before they ſatiate the Stomach.

The Wine that is made of them is one of the moſt pleaſant and wholeſom Wines made in this Iſle; its ſpecifick Virtues are not yet vulgarly known, but queſtionleſs excellent againſt the *Scurvy*.

Of Gooſeberries. *Gooſeberries* are cooling, and open the Belly; the like Vertue may be expected from its Wine. There is no Fruit more innocent than this, rarely injuring any by the over-eating of them.

They are for a long Seaſon uſeful in the Kitchin, few Families being ignorant of their worth.

Of Raſberries. After ſeveral other Summer-fruits are paſt, *Raſberries* come in uſe for a fine cooling repaſt; their Wine being one of the pleaſanteſt Liquors that can be obtained, and the moſt proper for the Autumnal Seaſon, before *Cider* is become palatable.

Of Strawberries. *Strawberries* are a pleaſant cooling Fruit, and the diſtill'd Water of them excellent againſt the *Stone*, *Gravel*, or *Strangury*.

Of Apricocks *and* Peaches. *Apricocks* and *Peaches* are not ſo commendable in this cold Climate for their Medicinal Virtues, as they are for their pleaſant taſte, and excellency in the Kitchin and Conſervatory.

Unripe

Unripe *Mulberries* crude or dried, are of an aſtringent quality; but if through ripe, they relax. The Juice of this Fruit is Anti-ſcorbutical, and therefore uſed to waſh the Mouths of ſuch that are affected with that Diſeaſe. *Of* Mulberries.

Figs, *Walnuts*, *Filberds*, *Medlars*, &c. are not within the limits of this diſcourſe, therefore I need not trouble the Reader with any thing of them. *Of other Fruits.*

Metheglin, as it is in ſtrength, ſo it is in virtue, warming, animating, and mundifying; reſtoring loſt Appetite, openeth the Stomach, ſoftneth the Belly; is good againſt the *Conſumption* of the Lungs, and all *Coughs* and *Colds*; againſt *Quartan Agues*, and all Diſeaſes of the Brain, as *Epilepſies*, *Apoplexies*, &c. it cureth the *Yellow Jaundies*: and there is no better Drink againſt the ſevere pain of the Gravel in the Reins, or Stone in the Bladder, neither is there any Liquor more conducing to long Life than this and *Cider*, as the many Drinkers thereof can witneſs. *Of* Metheglin.

The Vertues of the Liquor or Blood of the *Birch-tree*, have not long been diſcovered, we being beholding to the Learned *Van Helmont* for it; who in his Treatiſe of the Diſeaſe of the *Stone*, hath very *Of* Birch-Wine.

much applauded its Virtues againſt the Effects of that Diſeaſe, calling the natural Liquor that flows from the wounded Branches of that Tree, the meer Balſom of the Diſeaſe of the *Stone*. Ale brewed therewith, as well as the Wine that is made of it, wonderfully operates on that Diſeaſe.

Alſo *Birch-wine* is a great opener, and reputed to be a powerful Curer of the *Ptiſick*.

Of Chocolatte. *Chocolatte* is a very great Reſtorative, comforting and cheriſhing the inward Parts, and reviving natural ſtrength, and hath a wonderful Effect upon Conſumptive and ancient People, being drank hot in a Morning.

It is good in all Colds and cold Diſtempers, and having ſo equal a mixture of ſo many Ingredients of great Virtue, there is ſcarce any Diſtemper that proceeds from an Error in the firſt or ſecond Digeſtions, but may, by the uſe of this Liquor, or rather Diet, be in ſome meaſure corrected if paſt; or abſolutely prevented, if taken and uſed before-hand, being ſo homogenial to moſt Natures, and injurious to none. The too powerful virtues of ſome of them being checkt in their operation by their moderate Correctives: inſomuch that this Medicinal

diet

diet or repaſt doth deſerve the eſteem of a *Panacea* or general Medicine for moſt Diſtempers that attend us (ſometimes to our Graves.) As for Colds, it is well known, they are the firſt Cauſes of moſt Diſeaſes in Man, diſcompoſing the whole Microcoſm; In which Diſtemper little of Shop Medicine is to be uſed, and a better than *Chocolatte*, is not yet diſcovered.

The Virtues of *Thea* are very much applauded, throughout the Countries where it is ſo much drank, againſt all affects of the Head, and obſtructions in the Stomach, of the *Spleen* and the Reins. *of* Thea.

It drieth up all Vapours that offend the Head, and annoy the Sight.

It digeſteth any thing that lieth heavy on the Stomach, and reſtoreth loſt Appetite.

In brief, it is confidently affirm'd throughout the vaſt Regions where it is plentifully drank, that the drinkers of this Liquor are never troubled with the *Stone* or *Gout*.

The Virtues hereof are more largely diſcourſed of in the ſeveral Hiſtories of thoſe Parts where it is propagated, and in a Paper printed by Mr. *Thomas Garway* in *Exchange-Alley* near the *Royal Exchange* in *London*, the principal Promoter and Diſperſer of this Leaf and Liquor.

A Corollary *of the* Names *and* Natures *of moſt Fruits growing in* England.

CHAP. VII.

THis Tract of the propagating of Fruit-Trees, and extracting, preparing, and preſerving their Vinous Juices, cannot be compleat without ſome account of that variety of Fruits this Country produceth; which is a Task beyond my Ability exactly to perform; every County, and many Parts of each County, producing ſome ſort or other of Fruit not known in the next; or at leaſt giving them other Names, ſo that you cannot expect any exactneſs herein. Only a Catalogue of the moſt general and uſeful kinds that are either fit for the Table, Kitchin, Confectionary, or the Preſs, with ſome ſhort Notes or Obſervations on their ſpecifick Natures or Virtues.

SECT.

SECT. I.

Of Apples.

There is no Fruit growing in *England*, more uſeful or profitable than the Apple; whereof there are many ſorts.

The *Aromatick or Golden Ruſſeting* hath no Compere, it being of a Gold-colour Coat, under a ruſſet Hair, hath ſome Warts on it, its Fleſh of a yellow colour, its form of a flattiſh round. This Fruit is not ripe till after *Michaelmas*, lives over the Winter, and is without diſpute the moſt pleaſant taſted Apple that grows; having a moſt delicate Aromatick hautguſt, and melting in the Mouth.

The *Orenge-Apple*, ſo called from its likeneſs in colour and form to an Orenge, deſerves the next Place, having a fine rough Gold-coloured Coat, reſembling the Golden Pippin, only fairer; lives long, and is of a very pleaſant taſte.

The *Golden-Pippin* is, as was ſaid, ſmaller than the *Orenge-Apple*, elſe much like it in colour, taſte, and long keeping.

The *Ruſſet-Pearmain* is a very pleaſant Fruit, continuing long on the Tree, and in the Conſervatory; partakes of both *Ruſſet-*

ing

ing and *Pearmain* in Colour and Taſte, he one ſide being generally *Ruſſet*, and the other ſtreak'd like a *Pearmain*.

The *Pearmain*, whereof there are two or three ſorts, is ſo excellent an Apple, and ſo well known, that no more need be ſaid of it; only the larger ſort is more pulpy than the ſmaller, and keeps not ſo well; neither is the Summer-*Pearmain* ſo good as the Winter. They are all very good *Cider*-Apples, but not to be preferr'd to your *Cider*-Plantation, being no great Bearers.

Pippins, which are of ſeveral ſorts, take their name from the ſmall Spots or Pips that uſually appear on the ſides of the Apple. Some are called *Stone-Pippins*, from their obdurateneſs. Some are called *Kentiſh-Pippins*, becauſe they are a Fruit that agrees well with that Soil; others are called *French-Pippins*, having their Original from *France*; the *Holland-Pippin* from the ſame Cauſe, and the *Ruſſet-Pippin* from its Ruſſet hew. They are generally a very pleaſant Fruit, and of a good Juice, fit for the Table, Conſervatory and Kitchin; but not ſo fit for our Plantation for *Cider*, as the more ordinary Fruit, being but tender bearers.

The

The *Kirton-Pippin* is one of the beſt ſorts of Table-Fruit of that ſeaſon, which is from *Michaelmas* to *Alhallantide*, and yields very good *Cider*.

The *Carliſle-Pippin*, the *Bedford-Pippin*, and the *Bridgwater-Pippin*, are much commended for excellent Table-Fruits.

The *Golden-Rennet* is a very pleaſant and fair Fruit, of a yellow Fleſh, a good Bearer, and yields a very good Juice, and to be preferred in our Plantation for all occaſions.

The *Lincoln-Rennet* is preferred by ſome before any of the other Rennets.

The *Leather-Coat* or *Golden-Ruſſeting*, as ſome call it, is a very good Winter-Fruit, living long, and of a good firm and yellow Fleſh.

The *Green-Ruſſeting* is a tough and hard Fruit, long laſting, and of a very pleaſant hautguſt.

The *Red-Ruſſeting* is of a leſſer ſize, an excellent Apple, and long laſting.

The *John-Apple*, or *Deux-ans*, ſo called from its durableneſs, continuing two years before it periſheth, is a good reliſht ſharp Apple the Spring following, when moſt other Fruit is ſpent; although there are ſome Pippins will out-live them. The

Deux-

Deux-ans are fit for our *Cider*-Plantation: Although they are a dry Fruit, yet they yield a very good Juice, and not ſo little as may be imagined, and that very good and pleaſant, ſo they be not ground before *January*; they are great Bearers.

The *Marigold*-Apple, ſo called from its being marked in even ſtripes in the form of a *Marigold*; ſometimes the *Onion*-Apple, from the reddiſh brown Colour, reſembling a well-coloured Onion; ſometimes called the *Kate Apple*, and ſometimes *Johns Pearmain*, or *Joans Pearmain*, from its likeneſs to a *Pearmain*) is a very good Fruit, long laſting, and fit for the Table, Conſervatory, Kitchin or the Preſs, yielding a very good Juice, and to be propagated in your *Cider*-Plantation, bearing every other year, even to admiration; the intervening years but a few. There is another ſort of them that are called Summer *Marigolds*.

The *Harvey-Apple*, and the *Round-Ruſſet-Harvey*, are both excellent Fruits for the Table; and were they great bearers, no doubt but they would yield excellent Liquor.

The *Queen-Apple*, thoſe that are of the Summer, are excellent *Cider-Apples* mixt with other, being of themſelves ſweet. The

Winter-

Winter-Queening is a good Table-Fruit.

The *Paradiſe-Apple* is a curious Fruit, produced by grafting a *Pearmain* on a Quince.

The *Pome-Roy*, is a Fruit of a high name, a good taſte, a pulpy ſubſtance, and not yielding much Juice; yet that which is, is very good.

The *Pome-water* is an indifferent good laſting Fruit.

The *Golden-Doucet*, or *Golden-Ducket*, is much commended.

The *Weſtberry-Apple*, taking its name from *Weſtberry* in *Hampſhire*, from whence they are much diſperſed into the adjacent Parts, is one of the moſt ſolid Apples that grows, of a tough Rind, and obdurate Fleſh, ſharp and quick taſte, long laſting, and yields a very excellent and plentiful Juice, making a *Cider* equal to the beſt of Fruits, and for the Kitchin few or none exceeding it.

The *Gilliflower-Apple* is of a pleaſant Hautguſt, and long laſting, of a thick Rind, and hard Core, well ſtrip'd, and good for *Cider*, making an excellent mixture.

Of

Of early Apples, the *Margaret-Apple* is the beſt and moſt early, uſually Ripe about St. *Margarets* day in *June*. It is a fair and beautiful Fruit, and of a pleaſant taſte and ſcent, not to be match'd at that Seaſon for the Table and Kitchin, and deſerves a more general Propagation.

The *Jenniting* is next to be eſteem'd, as well for its early ripening as its pleaſant taſte.

The *Devonſhire Quarrington* is alſo a very fine early Apple.

The *Summer-Pippin* is a very pleaſant Apple in colour and taſte, and as neceſſary for all manner of uſes, yielding a delicate Juice.

The *Codling*, ſo called from the uſe it is put unto, is a very neceſſary Apple in the Kitchin, and makes a good Summer *Cider*.

The *Claret-wine-Apple* is fair, and yields plenty of a pleaſant ſharp Juice, from which it takes its name, and not from the Colour, it being a white Apple; but makes a rich Vinous Liquor, which well ordered excells moſt of other *Ciders*, eſpecially with a mixture of ſweet Apples.

The *White-Wining*, is a ſmall white Apple; the Tree is a great bearer, and the Fruit

Fruit juicy and pleaſant, but ſoon periſhing, and the *Cider* made thereof ſmall.

The *King-Apple*, though not common, yet is by ſome eſteemed an excellent Apple, and preferr'd to the *Jenniting*.

The *Famaguſta* is alſo in the number of the beſt early Apples.

The *Giant-Apple* is a large Fruit and well taſted, and the beſt of any Summer-Apple for Culinary uſes.

The *Bontradue*, or *Good Houſewife*, is the largeſt of Apples, a great bearer, and good for the Kitchin, and makes good Summer-*Cider*.

The *Cats head*, by ſome called the *Go-no-further*, is a very large Apple, and by its red ſides promiſes well for *Cider*.

The *Spicing*, of all Apples that are marked ſo red, is the meaneſt: but whether this *Engliſh* Apple ſo called, be the ſame that bears the like name in *France*, whereof there are Plants brought thence, I cannot determine.

The *Gennet-Moyle* is a pleaſant and neceſſary Fruit in the Kitchin, and one of the beſt *Cider*-Apples. The Fruit is well marked, and the Trees great bearers.

The *White Muſt* is a very pleaſant Apple, yielding great plenty of Vinous Li-

quor,

quor, bearing this name in *Herefordſhire*, and is thought, by ſome, to be the ſame with the *Golden Rennet* in *Hampſhire*.

The *Red Muſt* is alſo of the ſame Nature.

The *Fox-whelp* is eſteemed among the choice *Cider*-Fruits.

The *Bromsbury Crab*, although little better than the common, yet kept on heaps till *Chriſtmas*, yields a briſk and excellent *Cider*.

Eleots are Apples much in requeſt in thoſe *Cider*-Countries for their excellent Liquor, but not known by that name in ſeveral parts of *England*.

The *Stocken* or *Stoken-Apple* is likewiſe in eſteem there, although not known by that name in many Places.

The *Bitter-Scale* is an Apple much eſteemed of in *Devonſhire*, for the excellent *Cider* it yields without the mixture or aſſiſtance of any other.

The *Deans-Apple*, or the name at leaſt, is there well eſteemed of for the ſame Reaſon.

As alſo is the *Pleaſantine*, perhaps the ſame with our *Marigold*.

The *Pureling*, or its name, is not uſual, but in the ſame Parts.

The

The *Violet-Apple* is of a moſt delicate aromatick taſte, which occaſioned the name; it is a Fruit not uſually met with-al; It's of a greeniſh colour, and not of a very firm Body. Many give this name to other Fruits, which corruptly are called.

Fillets, whereof alſo there are the Summer and the Winter, in very high eſteem for their delicate Vinous Liquor they yield: The *Summer-fillet* for the preſent, and the *Winter-fillet* for laſting *Cider*.

The *Underleaf* is a *Herefordſhire* Apple of a *Rheniſh-wine* flavour, and may be accounted one of the beſt of *Cider*-Apples.

The *Arier-Apple*, *Richards*, or *Grange-Apples*, are alſo reckoned amongſt the beſt *Cider*-Apples.

The *Coling* and the *Olive*-Apples, are in thoſe Parts much eſteemed of for the ſame uſes.

But above all *Cider*-fruit, the *Redſtreak* hath obtain'd the preference, being but a kind of *Wilding*, and though kept long, yet is never pleaſing to the Palate. There are ſeveral ſorts of them, the *Summer* and the *Winter*, the *Tellow*, the *Red*, and the more *Green Readſtreak*; ſome ſorts of them have red Veins running through the whole Body of the Fruit, which of ne-

ceſſity muſt give the *Cider* made thereof the richeſt Tincture.

If they are kept till they are mellow, the *Cider* at the firſt is very luſcious, if ground early, then is the *Cider* more racy.

The *Quince-Apple*, ſo called from its colour, and is a very good Table-fruit, and then not bad for *Cider*.

The *Non-ſuch* is a long-laſting Fruit, good at the Table, and well marked for *Cider*.

The *Angels Bit* is a delicate Apple for taſte, and the Tree or its name proper to *Worceſtſhire* and thoſe Parts.

The *Peeling* is a very good laſting Apple, and makes very good *Cider*; it ſeems to be an antient *Engliſh* Fruit, being found in old Orchards, and agrees very well with this Air, and is a great bearer.

The *Oaken-pin*, ſo called from its hardneſs, is a long-laſting Fruit, and yields excellent Liquor, and is near of the Nature of the *Weſtberry* Apple, though not in Form.

The *Greening* is alſo another old *Engliſh* Fruit of a green Colour, and keeps to a ſecond year, and is a good Apple.

The *Lording* is a fair, green, and ſharp Apple, a conſtant bearer, being a hardy Fruit,

Fruit, and for the Kitchin only, to be preferred.

Sweet Apples there are of ſeveral ſorts, and their names change in every Place; ſo that they are rather known by their colour and ſize, than their names. There is one ſort called the *Honey-comb* in ſome Places, which is a fair Apple, and by mixture with other Fruit, makes admirable *Cider*; ſo doth the *Small Ruſſet-ſweet Apple*, whoſe Tree is always cankery.

There is a curious Apple newly propagated, called *Pome-appeaſe*; the Fruit is ſmall and pleaſant, which the Madams of *France* carry in their Pockets, by reaſon they yield no unpleaſant ſcent. The Tree is a very great bearer: I ſuppoſe this is that which is called the *Ladies Longing*.

The *Fig-Apple* is alſo lately propagated in this Country, the Tree yielding no Bloſſoms, as is uſual with all other Apple-trees; nor hath the Fruit in it any Core or Kernel: in theſe reſembling a Fig, and differing from other Apples, yet is a very good Table-Fruit, and laſting.

The *Creeper*, ſo called from the Tree that grows low, trailing its Branches near the Ground; the Fruit is alſo a good Fruit.

The *Indian-Crab*, it's a Fruit I have not yet ſeen, but am informed there is ſuch a Tree in *Hampſhire* that was brought from *America*, where it grew in the Woods as our *Crabs* do. The Fruit is reported to be a very pleaſant Fruit.

The *Sodome-Apple*, or *Bloudy Pippin*, is a Fruit of more than ordinary dark Colour, and is eſteemed a good Apple.

The *Moſcovy-Apple* is a good Winter Fruit, and a great curioſity, for that it is tranſparent.

The Summer *Belle & bon*, is a fair Apple, and the Tree a good bearer; but the Fruit is not long-laſting; for a ſhort time it's a good Table-fruit, and makes indifferent good *Cider*.

The Winter *Belle & bon* is much to be preferred to the Summer in every reſpect.

The *Pear-Apple* is a curious pleaſant Apple of a rough Coat, but the Tree no great bearer.

There are alſo the Apples called *Eſquire Vernons Apple*, the *Grutchling*, the *Pear-Ruſſet*, the *Stoak-Apple*, the *Suffolk-Apple*, and the *Nonſuch-Apple*, which are highly commended for the Table and the Kitchin, and then cannot be bad for *Cider*.

The

The *Pellmell-Apple*, the *Thrift-Apple*, and the *Winter Glary*, are excellent good living Apples.

Crabs, when kept till they are mellow, may be reckoned amongſt the Apples, and ground with other mellow Fruit, do much inrich the *Cider*; and is the beſt Refiner of foul *Cider*.

The *Coſtard*, *Parſley-Apple*, the *William*, the *Cardinal*, the *Shortſtart*, the *Winter-Reed*, the *Cheſnut-Apple*, and the *Great Belly*, are in many places Apples of eſteem: but being not acquainted with them, I can only name them. Many more there are both *French* and *Engliſh*, which either are not made familiar to us, or elſe are peculiar only to ſome Places, or their names changed in every County, or elſe are of ſmall account; which to enumerate would be tedious and uſeleſs.

SECT. II.

Of Pears.

The next in eſteem are *Pears*, ſo called from their *Pyramidical* form; whereof there are ſo great variety, that the Kitchin and Table may be furniſhed throughout the year with different Species.

The *Early Suſan* is the firſt ripe, being a ſmall round Pear little bigger than a large *Cherry*. The Colour of this Pear is Green, and taſte pleaſant.

The *Margaret*, the *Maudlin*, the *Cluſter-Pear*, the *Lenthall Primett*, the *Sugar*, the *Madera*, the *Green Royal*, *July Pear*, St. *Laurence*, *Green Cheſil*, and many other early Pears are in eſteem for the Table in *July*. But after them you have,

The *Windſor*, the *Greenfield*, the *Summer-Bergamot*, the *Orenge*, the *Soveraign*, ſeveral ſorts of *Katherines*, whereof the red *Katherine* is the beſt: The *Denny-pear* *Pruſſia-pear*, *Summer-Poppering*, *Lording-pear*, Summer *Bon-Chriſtien*, the *Orenge-Bergamot*, *Hampdens Bergamot*, *Bezi de Hery*, the *Violet-pear*, the *Painted-pear*, ſo called from its delicate ſtrip'd colours; the *Roſewater-pear*, the *Shortneck*, ſo called from the ſhortneſs of its form and tail; the *Binfield* or *Dove-pear*, the great *Muſk-pear*, the great *Ruſſet of Remes*, *Amadotte*, the *Rouſſellet*, *Norwich-pear*, the *Pomegranate-pear*, ſo called from its ſhape, and the *Edward-pear* very pleaſant, the *Meola a la Buſk*, *Crown-pear*, St. *Michaels-pear*, *Carliſle-pear*, *Roſhea*, one of the beſt of Pears. *King Catherine*, *Orenge Bergamot*, *Hampdens*

dens Bergamot, *Rouſelet-petit*, *Rouſelet Haſtife*, *Muſk Blanquet*, *Dove Muſk Bergamot*, *Queen-pear*, *White Robert*, and the *Deſireable-pear*, are all very good Table-fruit for their Seaſon, before, or at *Michaelmas*.

The *Bœvre du Roy* is eſteemed, for the Table, the beſt of all Summer-pears; is a fair brown Pear, and excellent in its Seaſon, melting in the Mouth, and thence called the *Butter-pear*, and bears well againſt a Wall. The *Green Bœvre pear* is more green and larger than the former.

The *Lewis-pear*, or by ſome the *Maiden-heart*, is the beſt of all Pears to dry, and is a good bearer.

The *Bloody-pear* is a good Pear, taking its name from the Red Juice it hath within its Skin, and is a very great curioſity.

The *Engliſh-warden*, the *French-warden*, the great *Spaniſh-warden*, the *White-warden*, the *Stone-pear*, the *Arundel-pear*, the *Biſhops-pear*, the *Caw-pear*, *Winter-muſk*, *Caſhurine*, the *Lady Hattons-pear*, the *Quince-pear*, the *Davis-pear*, *Mallborn-pear*, the red *Roman-warden*, the *Green-warden*, and *Winter-norwich*, are excellent baking Pears.

The *great black Pear of Worceſter*, or *Parkinſons Warden*, is to be preferr'd to

all other Pears to bake, it bears very well againſt a Wall; the Pears uſually weighing twenty Ounces, and ſometimes more, each Pear; and being twice baked with Sugar, exceed moſt Fruits.

The *Diego-pear*, *Monſieur-John*, the *Gilly-flower-pear*, *Pear-Royal*, *Bowden-Muſk*, *French Violet*, *Mogull-pear*, *Virgo*, *Lair*, *Soveraign-pear*, *Okenbury-pear*, the *White Worceſter*, *Rouſelet-dorine*, *Montpelier*, *Imperial-pear*, *Pear de Lyons*, a rare Winter pear for the Table, *Bergamot Bougee*, *Rowling-pear*, *Balſam-pear*, *Bluſter-pear*, *Emperours-pear*, the *Queen Hedge-pear*, *Frith-pear*, *Brunſwick-pear*, *Bings-pear*, *Winter-Poppering*, *Thorn-pear*, the *Portail*, the *Nonſuch*, *Dionier*, *Winter-Katherine*, *Clove-pear*, *Lambart-pear*, *Ruſſet-pear*, *Saffron-pear*, the *Petworth-pear*, or *Winter-Windſor*, *Winter-Bergamot*, *Pound-pear*, and *Hundred Pound-pear*, *Long-Bergamot*, *Burnt-cat*, *Lady-pear*, *Ice-pear*, *Dead mans pear*, *Bell-pear*, the *Squib-pear*, *Spindle-pear*, *Dogoniere*, *Virgin*, *Gaſcoign-bergamot*, *Scarlet-pear*, and *Stopple-pear*, are all very good Winter-pears, and keep throughout the old year.

Pears that uſually keep until the ſucceeding Spring, are the Winter-*Bon-Chriſtien*, the

the beſt of Winter-pears; the great *Surrein*, or *Serene*, *Little Dagobert*, the *Double-bloſſome-pear* the longeſt liver of all, and taſtes very well in the Spring; the *Oak-pear*, the great *Kairville*, the *Little black Pear of Worceſter*.

Pears that are eſteemed for their Vinous Juice in *Worceſterſhire*, and thoſe adjacent Parts, are the *Red* and *Green Squaſh-pears*, the *John-pear*, the *Green Harpary*, the *Drake-pear*, the *Mary-pear*, the *Lullam-pear*. But above the reſt are eſteemed the *Bosbury* and the *Bareland pears*, and the *White* and *Red Horſe-pear*.

As for the *Turgovian-pear* that yields that moſt ſuperlative *Perry* the world produces, mentioned in the *Pomona* of the moſt ingenious Mr. *Evelin*, I only wiſh it were more generally diſperſed.

Mr. *Rickets* of *Hoxten*, or *Hoſden*, hath a Pear he calls *Caſhio Bury*, a very excellent, and to be admired Fruit for its Juice.

SCET. III.

Of Cherries.

In the next place the *Cherry*, ſo called from the *French* word *Ceriſes*, is admitted to be a Fruit of general uſe, eſpecially for the

the Palate, off the Tree, and for the Conſervatory. They are ripe on the Trees but three Summer Months, *May*, *June*, and *July*; afterwards to be had only in the Conſervatory.

In *May* are the Cherries uſually called from the name of this Month: The *Duke* and *Archduke* againſt a good Wall are moſt years ripe before the end of the Month.

In *June* are ripe the *White*, *Red*, *Black*, and *Bleeding Hearts*, *Lukeward*, one of the beſt of *Cherries*; the early *Flanders*, the *Cluſter-Cherry* bearing three, four, or five uſually on a ſtalk; the *White-Spaniſh-cherry*, the *Amber-cherry*, the *Black Orleans*, the *White Orleans*, *Nonſuch*, the *Spaniſh-black*, and the *Naples*.

In *July* uſually ſucceed the *Late Flanders*, common *Engliſh-cherry*, *Carnations* a delicate Fruit for the Table or Conſervatory; *Morella*, or the great bearer, being a black Cherry fit for the Conſervatory, before it be through ripe, but bitter eaten raw; only it is to be eſteemed, being the laſt Cherry that hangs on the Tree; the *Morocco-cherry*, *Great Amber*, the *Egriot*, *Bigarreaux*, the *Prince Royal*, the *Portugal-cherry*, the *Kings Cherry*, the *Crown-cherry*, and

and the *Biquar*, both ill bearers: the great *Purple-cherry*, one of the beſt and lateſt Cherries, and a good bearer; the *Ounce-cherry*, ſo called from its fairneſs; the *Dwarf-cherry*, ſo called from the ſmalneſs of its Twigs and Fruit: there is alſo the common *Black Cherry*, much in eſteem for its Phyſical Properties.

SECT. IV.

Of Plums.

There is a great variety of *Plums*, and they alſo appropriated to ſeveral uſes; they continue longer on the Trees than *Cherries*, and are a more pleaſing, but not a more wholeſom Fruit.

The firſt ripe are the Red, Blue, and Amber, *Primordian-plum*, the *Violet*, Red, Blue, and Amber, the *Matchleſs*, the Black *Damaſin*, the *Morocco*, the *Barbery*, the *Myrobalan*, the *Apricot-plum*, a delicate Plum that parts clean from the Stone, the *Cinnamon-plum*, the *Kings-plum*, the *Spaniſh*, the Lady *Elizabeth-plum*, the *Great Mogul*, and the *Tawny-plum*.

After them are the *White*, *Red*, and *Black Pear-plums*; the two former little worth, but the Black a pleaſant Fruit; the *Green Oſterly-*

Oſterly-plum, the *Muſcle-plum* one of the beſt of *Plums*, the *Catalonia-plum* much like the former; the White *Prunella*, the Black *Prunella*, the *Bonum Magnum*, a fair yelowiſh green *Plum*, excellent for the Kitchin and Conſervatory; the *Wheaten-plum*, the *Laurence-plum* an ill taſted Fruit, the *Bole-plum*, the *Cheſton-plum*; the *Queen-Mother-plum* one of the beſt ſort, the *Dyaper'd-plum*, the *Marbled-plum*, and the blew Marble, the *Damaſco-plum*, the *Foderingham-plum*, the Blue and Green *Pedrigon*, and the White not ſo good a Fruit, the *Verdoch* good only to preſerve, the *Peach-plum*, the *Imperial-plum*, one of the largeſt of Plums, the *Gaunt-plum*, the *Denny-plum*, the *Turkey-plum*, the Red, White, and Green *Peaſcod-plums*, the White, Yellow, and Red *Date-plums*, the *Nutmeg-plum*, the *Great Anthony*, the *Jane-plum*, the *Prince-plum* the laſt ripe, and good for ſeveral uſes. Many other ſorts of Plums there are, whoſe Names are uncertain, and are therefore here omitted.

There are ſeveral other ſorts of Plums, as, the *Fryars-plum*, *Becket-plum*, *Chriſtal-plum*, *White Muſcle*, *White-prunella*, *French white Nutmeg*, *Catholick-plum*, *Turkey-plum*, *Amber-plum*, and the *Graſs-*

Graſs-plum, all of them curious and well taſted Fruits.

There are two ſorts of *Damſons*; the Black, which is the moſt neceſſary and beſt of all Plums; and the White, which is not ſo good as the Red: theſe are natural to our *Engliſh* Soil, as are the Black and White *Bullis*; whereof the White are pleaſant in *October* and *November*, and the Black neceſſary for the Kitchin in *December*, they uſually hanging on the Trees till *Chriſtmas*.

SECT. V.

Of Apricots, Peaches, Malacotunes, and Nectarins.

The *Apricot*, ſo called from *Apricus*, delighting in the Sun, is a kind of *Plum*, but far exceeding any of the former in every reſpect; whereof

The *Algier-apricot* is early ripe; it's a ſmall round and yellow Fruit ripe in *June*.

The *Maſculine-apricot* is a better and earlier Fruit than the former, but not ſo good a bearer.

The long, white, and *Orenge-apricot* differ from the common *Apricot*, as their names tell you. There is alſo the *Turkey-apricot*.

The

The great *Roman-apricot* is the largeſt of all the kinds, and therefore beſt for the Kitchin and Conſervatory.

Peaches, from the *French* name *Peſche*, are of longer continuance than *Apricots*, and of a richer and more noble guſt and ſavour.

The moſt early are the *Nutmeg*, both White and Red; the *Troy-peach*, next the *Savoy-peach*, *Iſabella*, *Perſian*; the *White-Monſieur*, *Newington*, *Bellice-peach* to be preferr'd to the former; the *Queen-peach*, and the *Magdalen-peach*, and the *Double-bloſſom-peach*.

After them come the *Rambouillet*, the *Musk-peach*, and the *Violet-musk*, both uſually eſteem'd the beſt of *Peaches*; the *Crown-peach*, the *Roman-peach*, *Man-peach*, *Quince-peach*, *Grand Carnation*, *Portugal-peach*, *Bordeaux-peach*, late *Newington*, *Deſpot* being ſpotted, *Verona*, *Smyrna*, *Pavie-peach*, and the *Colerane-peach*; one of the lateſt is the *Bloody Monſieur*, an excellent *Peach*, very red within and red without.

The *Modena*, *Orleans*, *Red Peach*, *Morello-peach*, *Navar* and *Alberges*, are very good Fruit, and come clean from the Stone.

There

There are ſeveral other ſorts of Peaches, as the *Arundel*, the *Admirable*, the *Syon-peach*, the *Uvedale-peach*, the *Superintendent*, the *Eaton-peach*, the *Laurence-peach*, the *Mountabon*, the *Perſeck*, the *Minnion*, the *Perpree*, the *Supreme-peach*, and the *Arabian-peach*, all of them very curious Fruit.

But the *Ricket-peach* hath lately gained the Reputation of being the beſt of Peaches in the Judgment of all Judicious Fruitiſts.

Of *Malacotonnes*, as much as to ſay, Apples with Cotton on them, there are two or three ſorts, but being late ripe and old Fruit, they are not much valued.

Nectarines, of the ſavour and taſte of *Nectar*, are very pleaſant Fruit, whereof the *Red Roman* is the faireſt, and by moſt eſteem'd the beſt and moſt delicate Fruit for its guſt, that this Iſland yields: By ſome the *Muroy* is preferr'd, and by ſome the *Tawny*, neither of them ſo large as the *Red Roman*.

Then there is the *Red* or *Scarlet Nectarine*, an excellent Fruit, and by many much ſet by, becauſe it leaves the Stone.

Beſides all which, there are the Great *Green*, the Little *Green*, the *Cluſter*, the *Yellow*, the *White*, the *Paper-white*, the *Painted*, the *Ruſſet*, the *Genoa*, the *Argol*, the *Perſian*,

Perſian, and the *Orbine Nectarines*, that are very good Fruit, but not to be compared to the former.

SECT VI.

Of Grapes.

The *Grape* is the moſt univerſal, and yields the beſt Juice of any Fruit whatſoever; ſeveral ſorts of them proſper very well with us.

Of which the *White Muskadine* is the beſt, bearing well, large Bunches and fair Fruit, ripens in moſt years againſt a *South*-wall, and fitteſt for *Eſpaliers* or a *Vineyard*.

The *Small black Grape*, by ſome called the *Cluſter-Grape*, and by ſome the *Currant-Grape*, is the firſt ripe, bears well: the Bunches are ſmall, but the Grapes ſo thick that you cannot put a Pin between them, and is a very pleaſant ſweet Grape, and is as fit for your propagation as any Fruit almoſt that grows.

There is another ſort of them without Stones.

The *Canada* or *Parſley-Grape*, ſo called from the Countrey whence it came, and from the form of its Leaf, which is very much divided and jagged like a *Parſley-leaf*;

leaf; it is ripe ſomewhat late, but a good Fruit.

The *Black Orleans* is a very good black Grape, and ripens very well with us.

The *Red-muſcadine* is a good Grape, and ripens well in very hot years, but is not ſo good as the *Black Orleans*.

The *Raiſin-Grape* is a large and long Grape, but ripens not well in this Climate.

The *White Frontiniac* is a Fruit of a very pleaſant hautguſt, like unto the *Rheniſh-wine*, and will ripen with us, in caſe it be planted againſt a good Wall, and in a hot Summer.

There is alſo the *Red Frontiniac*, much of the ſame nature.

There are alſo the *Portugal*, the *White Orleans*, the *Darbois*, and the *Allicant*, all very good Grapes.

And there are the ſmall *Blue Grape*, and the great *Blue Grape*, that are very good Fruit, and ripen well with us.

The *Burſarobe* is an excellent, large, ſweet, white Grape, and in ſome years will ripen well; as alſo will the *Muſcat*.

The *Burlet* is a very large Grape, but ſeldom ripening here.

There are alſo ſeveral old *Engliſh* Grapes, and ſome Foreign, that are fit only to make Vinegar of,

SECT VII.

Of Quinces.

There is not a more delicate Fruit in the Kitchin and Conſervatory, than the *Quince*; whereof

The *Portugal Apple-Quince* is eſteemed the beſt; it is a large yellow Fruit, tender, pleaſant, and ſoon boiled.

The *Portugal Pear-quince* is much like the former, except in its form.

The *Barbery-quince* is leſſer than the other, as is the *Engliſh-quince*, which is a harſh Fruit, and covered with a Doun or Cotton.

The *Lyons Quince* is a large yellow, and the *Brunſwick-quince* a large white, both very good, but all inferiour to the two firſt ſorts.

SECT. VIII.

Of Figs, Walnuts, Nuts, and Filberds.

Figs. *Figs* are highly eſteemed by ſome, whereof the *Great Blue Fig* is moſt accounted

ed of; next unto it, the *Dwarf Blue Fig*, being much leſs in Tree and Fruit, but better taſted and ſooner ripe.

The *Walnuts*, (or rather *Gaul-nuts*, or *French-nuts*, coming originally out of *France*, and corruptly called *Welſh-nuts* in the *Weſtern*-parts of *England*, the G being in time pronounced as a W, as *Guerre Warre*, *Guardian Warden*, &c. and ſo *Galnut Walnut*) are univerſally ſpread over this Country; of which there are ſeveral ſorts.

The *Great Double Walnut* in ſome places ripens very well, is very ſweet; but the Kernel anſwers not the bigneſs of the Shell.

There are other ſorts that are leſſer, with very hard Shells, and ſweet Kernels, that ripen very well in any place.

But the beſt are thoſe of a tender thin Shell, and a full Kernel, and of a middle ſize.

There is another ſort that grows near *Salisbury* of a middle ſize, and a very good Fruit, called the *Bird-nut*, from the reſemblance the Kernel hath to a Bird, with its Wings diſplayed at firſt view after the Nut is ſlit in the middle.

There is alſo the *Early Walnut* that ripens above a fortnight before any of the other,

and is of as thin a Shell and pleaſant a taſte as any of the other. This Fruit I have not obſerved any where, but at *Peterſfield* in *Hampſhire.*

Alſo there is a very ſmall ſort of this Fruit round, and but little bigger than a *Filberd*, growing at the ſame place.

Nuts. Beſides the ordinary *Haſel-nuts* that grow wild, there are Nuts that are of a thin Shell, large Kernel, and but little Husk, that are uſually planted in Orchards.

There is a large kind of theſe long thin-ſhell'd Nuts with a very fair Kernel.

And another ſort very large, that hath a thin Shell, which is the beſt of Nuts.

And alſo a great round Nut with a thick Shell and a large Kernel.

Filberds. But the *Filberds* are to be eſteemed above them, whereof there is the *White Filberd*, which is commonly known.

And the *Red Filberd*, like unto the former, only that the Kernel is covered with a red Skin, alſo the Shell and Leaf do incline more to redneſs than the other ſorts.

The *Filberd of Conſtantinople* hath the Bark whiter, the Leaves bigger, and the Husks more jagged and rent than the former.

mer. The *Nuts* are like thoſe of the white *Filberd*, but rounder and bigger, as Mr. *Ray* ſaith in his *Pomona*.

SECT. IX.

Of Gooſeberries, Currans, Barberries, and Rasberries.

Gooſeberries, ſo called from the uſe that have a long time been made of them in the Kitchin when Green-Geeſe are in ſeaſon. *Gooſeberries.*

The firſt ripe are the *Early Red*, which is a fine, ſharp, pleaſant Fruit: there are three ſorts of them, differing only in their ſizes, the biggeſt being the ſweeteſt.

There is alſo the *Blue Gooſeberry*, differing little from the former, only in colour more blue, and later ripe.

The *Great Dutch white Gooſeberry* is the faireſt and beſt, and fitteſt for our Vineyard, and a very great bearer.

The *Great Yellow Dutch* differeth from the former only in colour.

The *Engliſh Yellow Gooſeberry* is known to every one, and is fitteſt for Culinary uſes whilſt green.

The *Hedgehog Gooſeberry* is a large Fruit, well taſted, and very hairy.

The *Small rough Gooſeberry* is hardly worth the mentioning.

The *Green Gooſeberry*: of this there is the greater and the leſſer, both very good, and late ripe.

Currans. *Currans*, or *Corinths*, from the *Corinths* of *Corinthia* firſt taking their name; whereof there are ſome that have been anciently planted in theſe parts: As

The *Engliſh Red Curran*, once in eſteem. but now caſt out of all good Gardens, as is the black, which was never worth any thing.

The *White Curran* was, not long ſince, in moſt eſteem, until

The *Red Dutch Curran* became native in our Soil, which is alſo improved in ſome rich moiſt grounds, that it hath gained a higher name, of the *Greateſt Red Dutch Curran.* Theſe are the only Fruit that are fit to be planted and propagated for *Wine* and for the *Conſervatory.*

There is another ſort of *Curran*, newly propagated from abroad, but not to be eſteem'd for the Fruit, only for Curioſity.

Barberries. Of *Barberries* there are but three ſorts; the ordinary ſort, and *Barberries* without Stones, and the *Great Barberry*, which is a

ſort

ſort bearing bigger Fruit than either of the other.

Of *Raſberries* there are three ſorts; the Common wild, the large Red *Garden-Raſberry*, which is one of the moſt pleaſant of Fruits and uſeful in the Conſervatory, and for its delicate Juice; and the White, which is but little inferiour to the Red. *Raſberries.*

Alſo, I have ſeen formerly a *Raſberry* of a much darker colour than the Red, which was then termed the Black *Raſberry*, exceeding pleaſant in taſte.

There is a *Raſberry-tree* larger in Stalk and Leaves than any of the former, bearing a very large Bloſſom; but no Fruit comes to perfection of it in this Country.

SECT. X.

Of Medlars, Services, Cornelians, Mulberries, and Strawberries.

Medlars are a pleaſing Fruit, and in ſome caſes Medicinal; whereof there are ſeveral kinds.

The Common Engliſh, being but ſmall, and the *Great Dutch Medlar*, which is muc larger than the other, and is a good bearer. *Medlars.*

Mr. *Ray* mentions a ſort that are without Stones, which is a great curioſity.

And the *Neapolitan Medlar*, much like the former, without Stones.

Services. *Services* are a Fruit more common than deſireable, therefore I ſhall only name them.

Cornelians. The *Cornel-tree* beareth the Fruit commonly called the *Cornelian-cherry*, as well from the Name of the Tree, as the *Cornelian-ſtone*, the colour whereof it ſomewhat repreſents. This Fruit is good in the Kitchin and Conſervatory.

Mulberries The *Mulberry-tree* deſerves more room in our Engliſh Plantations, rather for the Leaf than the Fruit. Of *Mulberries* there are three ſorts:

The Black or Red *Mulberry* is known to moſt; the White *Mulberry* is ſmaller in the Tree and Fruit; the *Virginian Mulberry* is quicker of growth than the former, and its Fruit larger, and as pleaſant. Theſe Fruits are not to be ſlighted in the Kitchin and Conſervatory, nor for their Juice.

Strawberries. Although the *Strawberry* grows not on a Tree, and therefore cannot be eſteemed an Orchard-fruit, yet they deſerve a place under them, being humble, and content with the ſhades and droppings of your

more

more lofty Trees, and furniſh your Table with variety of early and delicate Fruit, in ſeveral kinds, *viz.*

The *Common Engliſh-ſtrawberry*, well known to all, and much improved by tranſplanting them from the Woods to the Garden.

The *White-ſtrawberry*, more delicate than the former.

The *Long Red-ſtrawberry*, not altogether ſo good as the former.

The *Polonian* or *Great Strawberry* is the largeſt of all *Strawberries*, and very pleaſant.

The *Rasberry*, or *Green-ſtrawberry*, is the ſweeteſt of all *Strawberries*, and lateſt ripe.

But the beſt of all *Strawberries*, is that kind lately brought out of *New-England*, where, and throughout the *American* Coaſt, they grow in great plenty, and are propagated here in *England*. They are the moſt early of all *Engliſh* Fruits, ſeveral years being ripe the firſt week in *May*, and continue bearing plentifully until Midſummer, unleſs drought prevent them. They are the faireſt (except the *Polonian*) and of the beſt Scarlet dye of any Fruit that grows, and very pleaſant and cool to the taſte. The whole Nation is obliged to the

the Induſtry of the Ingenious Mr. *George Rickets*, Gardner at *Hoxten* or *Hogsdon* without *Biſhopſgate*, near *London*, at the ſign of the *Hand* there; Who can furniſh any Planter with all or moſt of the Fruit-trees before mentioned, having been for many years a moſt Laborious and Induſtrious Collector of the beſt Species of all ſorts of Fruits from Foreign Parts. And hath alſo the Richeſt and moſt compleat Collection of all the great variety of Flower-bearing-Trees and Shrubs in this Kingdom. That there is not a day in the year, but the Trees, as well as the moſt humble Plants, do there yield Ornaments for *Flora*; with all ſorts of Curious and Pleaſant Winter-Greens, that ſeem to perpetuate the Spring and Summer, from the moſt humble *Myrtle* to the very true *Cedar* of *Libanus*. Not without infinite Variety of *Tulips*, *Auriculaes*, *Anemones*, *Gilly-ſtowers*, and all other ſorts of pleaſant and delicate Flowers, that he may be truly ſaid to be the *Maſter-Flowriſt* of *England*; and is ready to furniſh any Ingenious Perſon with any of his choiceſt Plants.

Mr. *Richard Ball* of *Brainford*, hath alſo a very fair Nurſery of all or moſt of the before-mentioned Fruit-trees, and hath been

been a very great Collector of the beſt of Fruits, and hath great Variety of Trees for Ornament and Shade, eſpecially the Famous *Platanus*; and many other Beautiful and uſeful Plants, Foreign and *Engliſh*.

Fruit-trees may be choſen by the Eye, but for the Goodneſs or the right Species or Nature of the Fruit, there is a neceſſity of truſting to the Nurſery-man, which is the Reaſon that theſe are inſerted, as Perſons of known fidelity, in vending Trees anſwerable to their Names. As for Trees for Beauty, and Flowers the moſt rich Ornaments of Nature, let Curious Eyes pleaſe themſelves.

Advertiſe-

Advertiſement.

MR. Henry Allen *before mentioned to be the Maker of the* Ingenio's *or* Mills *for grinding of Apples, maketh alſo* Skrew-preſſes *for the preſſing of the* Cider, *both* Skrew *and* Nut *being of caſt Iron, ſo tempered, that they ſhall never fail. Theſe* Skrew-preſſes *are cheaper, more durable, ſtand in leſs room, more portable, operate more effectually, and with much leſs labour than the* Great Wooden Skrew-preſſes. *The ſame Perſon adapteth the Rolls, whereof the before mentioned* Ingenio's *are made, for ſeveral other Mechanick uſes, to the great eaſe and advantage of the Operator, eſpecially for the breaking or heckling of* Hemp *or* Flax, *by means whereof a vaſt deal of Labour and Expence may be ſaved, and will very much add to the more facile making of the Linnen Manufacture. This* Machine *being uſeful in the dreſſing and preparing of* Hemp *and* Flax, *from the* Stalk *to the* Loom. *The particular management whereof requires a few Sheets to demonſtrate it, which in a little time may be made publick.*

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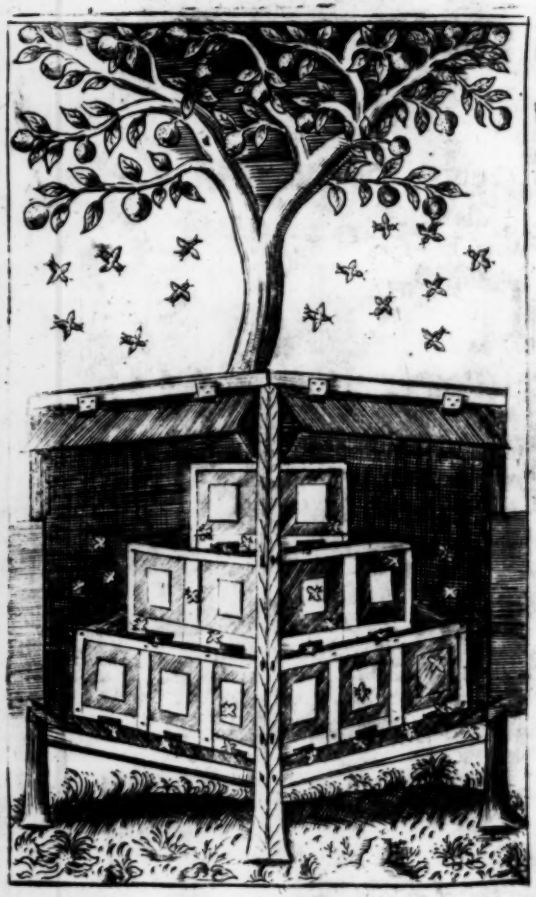

APIARIUM;

OR A

DISCOURSE

OF THE

Government and Ordering

OF

BEES,

With their Nature and Properties,

Tending to the best Way of IMPROVING them, and to the Discovery of the Fallacies that are imposed by some, for private Lucre, on the Credulous Lovers and Admirers of these Insects.

The Third Edition.

Written by *J. W.* Gent.

LONDON,
Printed for and Sold by *Thomas Dring*, Bookseller, at the Sign of the *Harrow* at *Chancery-lane* end in *Fleet-street*. MDCXCI.

BRITISH MUSEUM

To the

READER.

AFter o many worthy Authors that have publickly imparted ſo much of Art and Ingenuity to the World, concerning the ordering and governing this ſmall Animal the Bee; *and eſpecially Mr.* Butler, *whoſe Treatiſe of the* Feminine Monarchy, *hath been judged by Perſons of Learning to be the moſt complete that ever was written of any one Natural Subject, it will not be expected that any one ſhould exceed him, as to the general Scope of his Treatiſe. But ſeeing that divers Perſons have been for theſe many years, and yet are willing to endeavour an Improvement and Advancement of* Bees, *to make them more profitable, and bring them into greater eſteem amongſt us than formerly; and that by novel Ways and Methods of Ordering them, ſome Perſons of very good Quality and Parts, have taken a great deal of pains, and uſed much skill to obſerve the Nature and Properties of theſe Curious, Induſtrious and Profitable Inſects, not thinking it an undervaluing to their Reputation, altho'*

Slight is the Theme, yet not the Glory ſlight, [*Virgil.*]

Others on the contrary, wanting that Reaſon and Experience they pretended to, have abuſed the World with their fictitious Notions concerning Bees, *which have made a greater* Humm *than all the* Bee-*books that have been publiſhed before. That humming noiſe was the occaſion of my reviewing thoſe Obſervations. I had formerly made concerning theſe* ſmall, profitable, laborious, loyal, nimble, cunning, induſtrious *and* reſolute *Animals; ſo reſolved, that they cannot be compelled to digreſs from their own natural Inclinations, nor yet reſtrained from their prodigious Encreaſe, by which they preſerve their Colonies, which otherwiſe would ſuddenly be extinguiſhed: So profitable and laborious, that by the ordinary Methods of ordering them, they fully recompence all your Care and Coſt you need to beſtow on them with a ſufficient overplus; and ſo nimble and cunning, that they are not to be plaid withal, nor governed by ſuch that know not how to govern themſelves nor their Pens: But of any Creatures whatſoever the moſt eaſily managed and improved, if you proſecute their own ways or intentions that Nature prompts them to, as many poor*

and

and ignorant Country Houſewives can tell you; and the moſt learned and accompliſhed Poets *and* Philoſophers *have been forc'd to condeſcend unto: who after all their ſubtil diſquiſitions into the Natures and Properties of them, have ever concluded with admiration of their Virtues and their* Knowledge, Order, Government, Art *and* Induſtry. *Therefore if you deſign an improvement of them beyond the Ordinary Method, it is beſt firſt to underſtand their Natures, and wherein the common and ordinary Method of providing for them proves deficient, and then endeavour to ſupply all thoſe defects, and remove all obſtructions that ſtand in their way; that you may rather ingratiate your ſelf into their favour, by pleaſing them in every thing, than in the leaſt to thwart or croſs them, for which Love of yours to them, they will recompence you manifold. For their delight is in warm and dry Habitations, not narrow and tall, troubleſom to aſcend, but broad and ſhallow. For it was not the Love the* Bees *bare to* Ludovicus Vives *that made them ſettle under the Leads over his Study in* Oxford, *and continue there above an hundred years, although their coming thither at that time, might prove ominous to the future Eloquence of that Perſon: nor*

could a narrow place have afforded so great a Mass of Honey as was taken thence upon renewing the Leads, Anno 1630. as Mr. Butler hath related: But it was the convenience of the place being broad, warm and dry, that invited them to so long and continued a Succession. In other places of the same nature I have known the like, although not for so long a time. And as the Bees delight in a close and private Dwelling, so you must endeavour to preserve them by the smallness and closeness of the Doors to keep out their Enemies, which are not a few, and save them much of their labour, in a continual watch for a great part of the year, and secure them in their Sleep at other times from being destroyed or deprived of their Wealth; yet not to straiten them in their busie times of gathering. Many other things you may observe that they naturally incline unto, wherein you may assist them. But be sure not to plant any thing near, nor do any act that may be offensive or Heterogeneal to their Natures, whatsoever any advise you to. Nor do you feed your selves with vain Imaginations, that they will fix their Combs to Frames of your Fancy, nor work when and where you please; nor desert their Lechery, when you instruct them to the contrary, unless you have a

more

more curious way of Caſtration than is yet diſcovered. Nor do you expect ſo vaſt a Profit, as ſome have endeavoured to perſwade you unto, only to invite you to be a Purchaſer; leſt you reckon your Chickens before they be hatched. To aſſiſt you in theſe Diſquiſitions, I have put you to this ſmall charge: if it may be uſeful to you in proſecuting the Improvement of this little Animal, or in preventing your precipitating into Miſtakes and Errours by any Ignis Fatuus, *I have my Deſire and Reward. But whether thoſe other new pretended Methods of vaſt Advantage, that are ſo dear bought, or theſe ordinary and cheap Inſtructions will ſucceed moſt to your Content and Profit, Time and Experience only can demonſtrate; to which I muſt ſubmit. This nevertheleſs I can aſſure you, that what I have in this ſmall Tract poſitively affirmed, is either from Experience or good Authority; when peradventure what you pay dearer for, may be barely Suppoſitions; and yet at your own Coſt to be Experimented.*

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CHAP.

CHAP. I.

Of the Nature and Univerſality of BEES, *and the Antiquity of their* Colonies.

BEES and *Silkworms* are the only Inſects that are kept and nouriſhed by Mankind, for their Uſe and Benefit. The *Silkworms* for the fine ſpun Silk they yield, to adorn Princes and Grandees of the Earth withal; Nouriſhed only in hot Climates, and fed by Hand, by the Leaves but of one ſort of Trees, and that alſo with continual attendance for their time of feeding: Their Product at beſt but an Ornament. *Bees* of whom I ſhall now treat, are kept and maintained almoſt throughout the World, for the delicate Food, pleaſant Drink, and wholeſom Phyſick they yield; *Barbary* and other of thoſe hot Countries

abounding with them, ſo that *Wax*, the leaſt part of the Profit ariſing from them, is there a great Merchantable Commodity: *Ruſſia* and *Tartary* make their principal Drinks out of the labours of theſe induſtrious Inſects: All the Countries about the Mediterranean Sea, have ever been Stored with them, as moſt Hiſtories of thoſe Parts teſtifie; in *America* eſpecially, where our *Engliſh* Colonies are, *Bees* multiply even to admiration, ſo that we may eſteem them the only Ubiquitaries of any Inſect, hardy, enduring all Airs, hot, cold, wet, or dry: The hotteſt Summers hurt them not, unleſs by melting their Honey; nor do the coldeſt Winters kill them, unleſs they be too nakedly and ſeverely expoſed. In moiſt Countries they thrive, and are moſt apt there to ſwarm, but their Habitations ought to be kept dry, nothing more annoying them than wet within their Houſes: In hot and dry Places and Seaſons they gather great ſtore of Honey, eſpecially where the Sea or ſweet Springs are near; So that we may well ſay with *Butler*, *That there is no ground (of what nature ſoever it be, whether it be hot or cold, wet or dry, hill or dale, Woodland or Champian, Meadow, Paſture, or Arrable; in a word, whether*

whether it be battle or barren) which yieldeth not matter for the Bee to work upon. Then they are the moſt induſtrious of any Animal whatſoever, never at reſt, whilſt either that they have matter to work upon abroad, or room to work in at home: If they cannot find wherewith near home, on which to gather Honey or Wax, they fly far for it. For ſwiftneſs they exceed the Wind, notwithſtanding which, many of them daily become a Prey to the Swallow and other Birds. In their underſtanding alſo, they ſurpaſs all other Inſects, that is, in their diſtinguiſhing of times and ſeaſons wherein to labour, and ſend forth their Colonies, and how to beſtow or expend their hoarded Treaſure. And when they have poſſeſſed themſelves of a new Habitation, their curious Architecture is to be admired; but above all their Properties and Virtues, that of their *Preſcience* is moſt obſervable, daily foreſeeing what Weather is likely to ſucceed, and ordering their Affairs accordingly, and annually providing of Stores for the approaching Winter; Nature having inſtructed them to foreknow, that they ſhall ſtand in want of ſuch Proviſions: They are not only Prognoſticators for themſelves, but Portenders of good

or

or evil (or ominous) to Mankind, as hath been often obſerved from many accidents that have hapned or ſucceeded after their unuſual actions: which made the Poet, and queſtionleſs many others in that Age, take them to be Divine, as well as the Muſes Birds; elſe would he not, after a repetition of ſeveral of their extraordinary Properties, have ſang,

Georg. 4. *His quidam ſignis, &c.*

From theſe Examples ſome there are maintain,
That Bees deſcend from a Celeſtial Strain,
And Heavenly Race.

After him *Pliny* eſteem'd their manner, time, and place of ſetling, as *Augures* or *Preſages*; for they ſometimes ſetled amongſt Houſes, or on the Temples of their Gods, as you may read in his 11*th* Book of his Natural Hiſtory, *cap.* 17. But whether they portended good or evil, is not yet clear from Hiſtorical Obſervations: For the ſame *Pliny* relates, That a Swarm of Bees ſetled within the very Camp of General *Druſus*, the very ſame day when he obtain'd that notable Victory at *Arbalo*. Yet may you read in *Lucius Florus* his *Roman*

man Hiſtory, *lib.* 2. *cap.* 6. That in the ſecond *Carthaginian* War, when *Hannibal* fought againſt the *Romans* by *Tranſimenus* Lake, the Swarms of Bees that cluſtred upon the *Roman* Enſigns, proved unlucky Signs of the great Overthrow *Flaminius* the *Roman* General afterwards ſuſtained. Afterwards the ſame Author tells you, *lib.* 4. *cap.* 6. That before the great Battel between *Cæſar* and *Pompey*, when there were above 300000 Men in the Field, in both Armies, beſides the Aids of Kings and Senators, Swarms of Bees (not uſual amongſt Armies) preſaged that total Ruine of *Pompey*, and Victory to *Cæſar*.

In the laſt-cited Chapter of *Plinie*'s Natural Hiſtory, he tells you, that there was a Swarm of Bees reſted upon the very Lips and Mouth of *Plato* whilſt an Infant, preſaging his future Eloquence. The like hapned to *Pindar*, *Lucan*, and St. *Ambroſe*, as is by Hiſtorians recorded. Of later years we have an Account of the Swarm of Bees that welcomed *Ludovicus Vives* to *C. C. College* in *Oxford*, *Anno* 1520. ſignifying the incomparable ſweetneſs of his Eloquence, whereof at large you may read in *Butler* his *Feminine Monarchy*, *c.* 1. *n.* 59. But the uncertainty of their Portents leaves

leaves us in doubt what to conclude from ſuch preternatural Accidents.

And as they are ſo univerſally diſperſed, ſo are their mellifluous Colonies of very great Antiquity; *Samſon* feeding on the Honey made by a Swarm of Bees that hiv'd themſelves in the Carcaſe of a *Lion*, and *Jonathan* taſted of the Honey that dropped from a full *Comb* in a Wood. Profane Authors alſo have not paſſed theſe Inſects over in ſilence, the moſt ancient Poets and Naturaliſts having written largely of them; as *Heſiod*, *Philiſtus*, *Menecrates*, and many others. *Ariſtomachus* for fifty eight years did little elſe but keep Bees, and *Philiſtus* employ'd his whole Life-time about them, as *Pliny* relates, *lib.* 11. *cap.* 9. Honey being much more in eſteem in thoſe Ages than in theſe, *Sugar* having lately gained a Repute above it. For if you obſerve moſt of the ancient Inſtructions for Conſerving, Preſerving, or other Confectionating, *Honey* was then preſcribed where *Sugar* is now: So that thence it may be preſum'd that Bees were more nouriſh'd and cheriſh'd than in theſe later times. Such an opinion had the Ancients of Honey, that in caſe it were gathered by the Bees under a certain Conſtellation, that it would be ſo heavenly

a ſweet Liquor, that no one thing in the World might be comparable to it (*Pliny lib. 11. cap. 14.*) for the Univerſal Cure of Diſeaſes, and reſtoring from Death to Life, like unto that Celeſtial and Divine *Nectar* which they ſuppoſed did immortalize the Gods above.

But how theſe numerous Inſects firſt came to be reduc'd into Colonies is uncertain, unleſs *Ariſtæus* the Son of *Apollo* and King of *Arcadia* (as ſome report) was the firſt Diſcoverer of their Uſe and Order; a Work becoming ſo great a Perſon. But certain it is that they in ancient times had their reſidence in hollow Trees in ancient Woods, as that of *Jonathan*'s finding Honey there, ſeems to aſſert: and in other Concavities.

Oft in deep Caves (if Fame a truth report)
Low underneath they vault their Waxen Court;
And oft diſcovered in a hollow Rock,
Or in the Belly of an aged Oak.
[Tranſlat. of *Virgil.*]

And at this day in many places it is not unuſual, to find ſwarms in Trees and hollow places in Buildings, *&c.*

From

From whence their Swarms iſſuing out, it is probable that they were entic'd into Hives or other Receptacles prepared for them; which were firſt made of Rinds or Barks of Trees, in imitation, as may be ſuppoſed, of the hollow Trees they naturally placed themſelves in. Afterwards by degrees they began to make them of other Materials: And ſome, before *Pliny*'s time, had made ſuch Hives, with that *foſſile Glaſs* we call *Iſland-glaſs*, wherewith Ships are glaz'd; and ſome of clear *Horn*, placed in Frames to diſcover the Bees Work, although in vain. Then they betook themſelves to the making of *Hives* of Oſier twigs, and ſuch like, and dawb'd them; as yet in many places are uſed. From all which it may be concluded, That *Bees* preſerved in *Colonies*, and their increaſe by Swarms, is of that Antiquity, that no Hiſtory certainly mentions the firſt Invention of their management, unleſs you will credit that of *Ariſtæus*.

CHAP.

CHAP. II.

Of the breeding of Bees.

THat *Bees* are *Insects*, and that the moſt, if not all, of *Insects* are ſometimes engendred by Putrefaction, is not by any denied; *Bees* many times being engendred in the corrupted Carcaſes of Beaſts, according to the Poet;

Quatuor eximios præſtanti corpore Tauros, &c.

Four of his largeſt Bullocks forth he took,
As many comly Heifers never brook:
And when the ninth day bright Aurora *ſhew'd,*
He worſhips Orpheus, *and the wood review'd.*
A Wonder *not to be believ'd, he ſees*
From the diſſolved Entrails Swarms of Bees.
Which from the broken ribs reſounding fly,
And in a thick Cloud ſally to the Sky.
On a tall top branch they Cluſter now,
As Grapes hang dangling on the gentle bough. [*Virg. Geor.* 4.]

To

To which end alſo the ſame Poet directs the very Method of ordering a *Steer*, ſome a *Heifer*, others an *Ox*, limiting it to that *Species*, others producing other Inſects, that out of their Carcaſes multitudes of Bees may be engendred. And it is not improbable that the Carcaſes of theſe Beaſts ſhould produce *Bees*, when we every Summer perceive, that other Beaſts that lie in the open Air to produce Inſects of other Species. But this of *Bees* may not ſo well ſucceed in theſe Northern, as in the more Southern Parts of *Europe*, where our Poet lived.

It was the Opinion alſo of the ſame Poet and of others, that *Bees* gathered their Seed out of certain Leaves and Flowers, and carried them to their *Hives*, out of which their young were produc'd.

'Tis ſtrange that Bees ſuch cuſtom ſhould maintain,
Venus to ſcorn, in wanton luſt diſdain
To waſte their ſtrength; and without throws they breed:
But cull from Leaves and various Flowers their Seed.

But

But this Opinion gains not much credit, nor is the other way practicable here. Therefore other ways for the Generation of theſe worthy Inſects are to be diſcovered. *Ariſtotle* himſelf thought it a work of great difficulty to diſcover it: And *Butler* in his *Feminine Monarchy* hath taken great pains about the Generation of the *Queens*, *Princes*, *Drones* and *Honey-Bees*; only from him I ſhall obſerve, that *Bees* begin to breed about the middle of *February*, if they are well provided for, and the Spring be forward, elſe in *March*, by laying their *Eggs* or Seed at the bottoms of their void *Cells*; which by the warmth of the *Bees* ſitting on them (the Seaſon of the year concurring) are converted into Worms or Grubs, as moſt Inſects are before they fly. Thus by the old *Bees* ſitting on, warming and feeding theſe Grubs, in about three Weeks time, are a whole Set of theſe Inſects generated. And as the Spring comes on and Food increaſes, ſo do they increaſe their Breed, throughout the Months of *March*, *April*, *May*, *June* and *July*, continually feeding their young, either with their old ſtock of Honey in bad Weather, or with new Food and Water, which they continually gather and carry to their young if

the Weather permit them to fly abroad; or elſe in building Combs, as far as their room will ſuffer them, and as it is for their own convenience. And thus do they build and breed until the end of *July*, and ſometimes after. For when Bees have done Swarming, you may be confident they have done breeding, and not before.

It is moſt ſtrange, yet true, that theſe Inſects, as ſoon as they are Hived begin their work, and the very next Morning will they build a Comb; As it appeared by a Swarm, that upon ſome diſlike deſerted their Hive the next day after their Swarming, and left a Comb of four or five Inches in length, with many deep wrought Cells in it.

However from every Ingenious Bee-Maſter's Annual Experience, I may ſafely conclude, that Bees do not ſpend their time in theſe Spring and Summer-months (whilſt they breed) in Luxury and Idleneſs, as by ſome is imagined; but to maintain and increaſe their Colonies, during that part of the year that yields them plenty of Matter out of the various Bloſſoms that are abroad, for the building of their Combs, and feeding their young; until not only that Matter that is fit for thoſe uſes ceaſeth, but until

til the Leaves of the Oak and other Honey-bearing Leaves and Plants yield plenty of that Nectar or Celeſtial Dew that they lay up in ſtore for their Winter and Vernal Proviſion, and whereof their Maſters many times deprive them.

In vain therefore can it be expected, that this noble (yet indocile) Inſect, ſhould be either perſwaded to deſiſt from breeding ſooner than the Seaſon of the year enforceth them; or to gather Honey before it is to be had, as ſome would inſinuate into us to believe.

It is not to be fear'd (in caſe it were in our power to prevent them) that Bees will ever overſtock themſelves; for were the Hive never ſo full of Bees, they would the ſooner fill their Cells with Honey, and the better live over the Winter. And after they have kill'd their Drones, which they uſually do before the gathering of their Honey, there is not an idle Bee nor a Beggar amongſt them.

Beſides, there is a neceſſity of their continual breeding all the Summer, by reaſon of their continual waſte; For after the breeding time they every day waſte their Number; that upon an eaſie computation, a thouſand Bees ſcarce ſupply the loſſes

of a Week in the hot gathering time, they being ſubject to ſo many Caſualties; For the Swallow and many other Birds daily make a Prey of many of them, beſides what the extremity of the Weather deſtroys, and infinite of other accidents befall theſe innocent Creatures; That of a Swarm of Thirty thouſand Bees in *June*, you have ſcarcely left at *Michaelmas*, above Ten thouſand, over and above what are bred in that time, the reſt having loſt their Lives in their Adventures abroad. It is alſo eaſie to caſt up, that there are about Fifty thouſand Cells in an ordinary Stall of Bees; and although the greater part of them have their Inhabitants in the Summer, yet but few of them in the Winter.

Many Opinions there are amongſt Bee-Maſters, concerning Drone Bees, moſt making them to be a different Species of Bees, when upon a ſtrict view and examination, they ſeem all to be but one ſort. For you may obſerve that moſt Inſects (eſpecially ſuch that may proceed from the Putrifaction of ſome Bodies, amongſt which Bees may be reckoned) are of both kinds, Male and Female: and that in their declining Age they engender, and lay their Seed or Eggs, and then vary in ſhape and proportion

tion from what they were before in their prime; As may be obſerved in Ants, who are all young luſty and laborious in the Spring, in the middle of Summer lay their Eggs, and ſoon after become aged, winged, and dull; and ſo at a little above a years end leave their Colonies to their vigorous Succeſſors. The ſame may be obſerved in Silkworms hatched in *May*, flouriſhing and laborious in *June* and *July*, and in *Auguſt* engendring, growing old, winged and dying, in four Months beginning and ending their Lives. And many other Inſects after the ſame manner, begin their Lives in one form or ſhape, and determine them in another; begin Labourers, and end Breeders. Therefore it is not difficult to convince any ingenious Scrutiniſt, that Bees in the Spring, before breeding time, are generally all of one Species, laborious and induſtrious. And that the Seed left by the old decayed Bees of the precedent year, do by degrees hatch and become a new Progeny in the Spring following: And that then the old ſuperannuated Bees become layers of Eggs, in order as they are in age, ſome being not ſo old nor decaying ſo ſoon as others, which Eggs by the warmth of the Seaſon and plenty of nouriſhment, are ſucceſſively

ceſſively hatched, and ſoon grow to be labourers; the aged Bees then become dull, heavy and idle, and ſo like the Inhabitants of *Socotora* near *Æthiopia*, when ſick and aged, are quit of the pains and fears that attend longring Diſeaſes, by a ſudden diſpatch given them by their Indulgent Children, who hate Idleneſs even in their own Progenitors.

It will be very difficult to demonſtrate, how or after what manner the Drones (in caſe they are only the Male Bees) ſhould ingender or make pregnant the Female Bees, in the Months of *June* or *July*, which are not to lay their Eggs till the following Spring. But if you ſay they lay their Eggs in the Summer, as the Silkworms do, for the ſubſequent Spring, then would they be viſible; for the moſt curious Eye cannot diſcern them amongſt the Virgin Combs of the moſt proſperous Stalls; That they are carried in the Bodies of theſe ſuppoſed Female Bees, all the Winter is as improbable, ſuch hot Bodies being not ſo dull in procreation as Cows, Elephants, &c. Therefore I hope I may (with ſubmiſſion to the Judgment of the more Learned and experienced) aſſert, that theſe as well as other Inſects, reciprocally ingender the one

one with the other, and that every of them being naturally fruitful, and of both Sexes, do lay their Eggs in a few days after impregnation, from which a continued ſucceſſion is raiſed during the warm breeding Seaſon.

But the greateſt Objection I now meet withal, is, how the King, Queen, or Maſter-Bee, is raiſed, which for many Ages hath been treated of, and is yet univerſally affirmed to Govern the whole Colony? In anſwer to which, I only ſay, that there is no abſolute neceſſity, that there ſhould be a Government amongſt irrational Creatures; eſpecially amongſt Ants, Bees, Waſps, &c.

Yet it is not to be denied, but that there is an Order amongſt them. The like you will find in Birds, that unite in Flights; in ſeveral ſorts of Beaſts, that gather in Herds; and in Fiſh, that ſwim in Shoals, in far greater number than either Beaſts or Fowls. Theſe alſo know their Seaſons move far, eſpecially Birds, as the Swallow, Fieldfare, &c. and in great order, have their Leaders whom they follow. The ſame order doubtleſs is amongſt Fiſh: As Herrings, Salmon, Mackarel, &c.

Yet could I never learn that there was a

rent Species amongſt them that commanded the reſt, as hath been long diſcourſed of to be amongſt the Bees; For the moſt Curious Eye cannot diſcern thoſe Majeſtick Cells, nor thoſe ſtately Bees in a Virgin-ſtock, taken in the firſt Winter after their Hiving; which if they had ſo great underſtanding and reaſon, as is required in ſo grand an Affair as Government, eſpecially Monarchy, the beſt of all Governments, and proper only to the moſt excellent of all Living Creatures, Man; ſurely they would take care to erect a Court for ſuch their Prince, for his preſervation; whoſe care they depend on, to preſerve them.

This concerning their Government, I only add to abate that Opinion that is ſo rivetted in moſt Bee-Maſters, that they do believe that a Swarm of Bees cannot proſper without a Leader; and that, The Reaſon of their not ſwarming ſometimes, is, becauſe they want a King, Queen, or ſuch like, to lead them forth. To the end that my deſign of multiplying Swarms and Colonies may be the better thought of, which otherwiſe muſt be blaſted in the very Bud, it being irrational to think or imagine to encreaſe them this new propoſed way, in caſe the other received Opinion be true.

CHAP.

CHAP. III.

Of Encreaſing and Swarming of Bees.

MAny Attempts have been made by ſeveral Ingenious Perſons, for the encreaſe of Bees, without the troubleſom and hazardous way of Swarming; by giving them liberty in the Spring and Summer to ſwell their vaſt Numbers into ſeveral Artificial Hives, the one ſet under, or by the other. But when they are diſperſed into ſeveral Hives or Boxes, and near an equal proportion in each Box; yet when theſe Hives are ſeparated with the Bees in them, that part ſeparated from the old Stock will not thrive: A great Argument of their want of, and love unto their King or Queen, if they have any, which doubtleſs remains amongſt his greateſt Riches in the firſt Stock; from which if part of them voluntarily ſeparate themſelves, by Swarming with their Leader they ſoon betake themſelves to their work.

So that I could never obſerve, from the Experience of any other, nor yet from my own, although often and ſeriouſly attempted,

ted, that the Stocks or Colonies of Bees could by other ways or means, than by their own voluntary Swarming, be ever multiplied or increaſed.

Therefore if you deſign many Stocks in your *Apiary*, or that you keep your ordinary Stock only for increaſe wherewith to ſtore your better Hives (hereafter diſcourſed of) which you keep for the ſake of the Honey, be ſure not to over-hive your Bees; for the leſs the Hive is, the oftner they Swarm. For Bees over-hived rarely increaſe, unleſs it be an early Swarm and in a good Summer. And in good Summers, an early Swarm not over-hived may caſt a Swarm it ſelf: A ſufficient Argument that they ſpend not their time in Luxury and Idleneſs; and that although they have room enough in their Hives to make their Combs, and ſtore themſelves with Honey, yet do they breed during the breeding-time, elſe could they not ſend forth a new Colony ſo ſoon; and cannot employ themſeles in gathering Honey before it falls.

The ſending forth of Swarms or Colonies doth not at all hinder or confound the Bees, it being but the work of two or three days to prepare for a Swarm: unleſs the badneſs of the Weather prevent, which may as

as well prevent them of working as of ſwarming. And after they are Hived, they, the very next day, fall to making of Combs if the Weather permit, and will in few days in fair Weather have made large Combs, and laid their Eggs or Seeds for another Breed. So that it cannot be reaſonably imagined that Bees are in any confuſion either before or after Swarming, or that they loſe any time beſides the day they ſwarm, as ſome have reported.

Bees uſually ſwarm twice in a year, ſometimes thrice, (and though but ſeldom) four times in an extraordinary good year; ſo that there is no danger of a decay of your Stock, unleſs through your own neglect, but a certain hope and confidence of taking a Swarm every year from each Hive to ſupply your new Hives, (we are hereafter to treat of) without any diminution to your breeding Stock; and as may alſo be preſumed, a ſtore left for a future encreaſe, and thoſe that are ſuperannuated left for you into the bargain, ſo that care be always taken not to over-hive them.

But that which would moſt conduce to your advantage would be to cauſe them by ſome means or other to Swarm, when they are in a Condition fitting for that purpoſe.

For

For every *Bee*-Maſter knows, that an early ſwarm coming out when the Earth is clothed with wax-yielding Flowers for the building their Combs, and that the *Bees* have the whole, or at leaſt the beſt part of the Honey-gathering Seaſon before them, is better than two or three after Swarms and better than the Stall whence it comes.

Alſo it is obſerved, that many good Stalls and well filled with *Bees*, are long ere they ſwarm; and ſometimes lie out under and by the Doors of their Hives all the ſwarming ſeaſon, there being no viſible cauſe for ſuch delay; which is a great impediment to that improvement that might otherwiſe be made of theſe Inſects, and much troubleth and diſcourageth the *Bee*-Maſter. Every one knowing that the principal advantage that yet was ever made by keeping *Bees*, hath been in the multiplying them and their Colonies.

To obtain which many Attempts have been made to provoke them to riſe in fair weather, when they have abundantly lain out and hang'd under and by the Hive in great Cluſters, by bruſhing them down and often diſturb their quiet, which hath ſometimes although rarely ſucceeded; others have taken off the Hackle in the heat of

of the day, and expoſed them as much to the heat of the Sun as they could, which hath alſo ſometimes proved effectual. When they hang in Bunches under the Door of the Hive, it is a good way to place a large Pewter Charger under them, ſo placing it with ſome props behind, that it may incline to the Southwards, and by that means reflect the heat of the Sun on the *Bees*, which will make the place very warm, and if the Charger be polite, it may make the place too hot for them: In a day or two, by this means, they may Swarm.

But theſe ways are all too ſlender and uncertain to produce the deſired effect; Therefore ſome way may probably be diſcovered to provoke them to ſwarm at ſuch a time as the *Bee*-Maſter ſhall poſitively determine; That he may be ſaid to command a Swarm, (the Store of Bees, and conveniency of the Seaſon concurring.) Which muſt be done either by an invitation of them from their old home, as many other Creatures are uſually allured, or drawn from one place to another by Stales, Baits, Calls, or ſuch like policies: As Ducks by Dequoys, ſeveral other Birds by Calls, ſome by Baits, and Fiſh by light, &c.

&c. Or it muſt be by ſome facile enforcement from their Hives, by making their former place of abode uneaſie to them. For *Bees* will depart from their Hives if they like them not, although Combs have been built in them: And I have known *Bees* ſwarm, when they have had much room in their Hives, and nothing openly appearing offenſive to them. At *Michaelmas* I have had a ſmall caſt from a Hive, where there was no apparent cauſe for their departure. Therefore may we again repeat

Felix qui potuit rerum cognoſcere cauſas.

I only hint theſe things, that ſuch that (out of their great love to theſe admirable Creatures) have been at ſo vaſt an expence and trouble in proſecuting that deſign of preventing the ſwarming of *Bees* and keeping them meerly for pleaſure, without profit, as it (contrary to the promiſes of ſome) hath proved; (my ſelf ſeveral years ſince having had a ſhare in thoſe diſapointments) may afford a little time to try ſome experiments to multiply Swarms (inſtead of hindering them) which may be done without any conſiderable expence, and little more

more than obſervation: And without any charge of *Bee*-Houſes or Licenſes to uſe them, only Hives, Stools, and Hackles muſt be provided in caſe of Succeſs. And I dare affirm, that whoever ſhall firſt oblige this Nation with a true and publick diſcovery of this Art, may be ſaid to have done more to the advantage of Agriculture (if I may call this a branch of it,) than any thing that hath been done in it theſe many years. For in caſe the *Bee*-Maſter were but certain to have one Swarm out of each Hive in *May*, what a vaſt encreaſe would he have in a few years? Although he ſhould permit each Swarm to ſtand but two ſwarming Seaſons after he had hived them. And what a certainty would he be at in the proſperity of his Stock; it rarely happening, that an early Swarm ever ſuffers, unleſs through their own age, or the negligence of the *Bee*-Maſter.

CHAP.

CHAP. IV.

Of the Bee-Hives or Houſes.

BEfore we did obſerve, that ſome of the ancient *Bee*-Maſters had made Hives of tranſparent Matter, that they might the better diſcern the Work of the *Bees*; which it ſeems did not ſucceed according to expectation, elſe had they been more frequently uſed and approved of by the Reporters of them. *Butler* alſo condemns the uſe of them to that intent. And moſt true it is, that you cannot through the cleareſt Glaſs diſcern their working, nor yet their Combs, unleſs in *July* or *Auguſt* about Noon, when moſt of the *Bees* are abroad, and their Company begin to wax thin by their killing their Drones, and death of their old *Bees*, which now through their conſtant and extraordinary labour have worn out their wings, and fall far from home, uncapable of ever returning.

For oft their Wings are torn on Rocks abroad,
Freely ſpending their Lives beneath their Load:

In

In Flow'rs and making Honey ſuch a pride
They have, by which their Lives away do
glide. [Virgil.]

Then may you diſcern the ends of their Combs filled with tranſparent *Nectar*; but from that time they work not in making Combs, nor yet in breeding.

Some have been of Opinion, that by the light of theſe tranſparent Hives, theſe induſtrious Creatures do frame their Work with more expedition and delight. To which I may anſwer, That in the darkeſt Cells or Caves they ſhape their Combs as curiouſly and artificially as in the moſt lightſome: And that in theſe that are tranſparent, the numerous labourers do ſo much obſcure their work, that you would think the light of ſmall advantage to them. Therefore Glaſs for that purpoſe is of no great uſe.

It is likewiſe ſuppoſed that Bees take much pleaſure in the Light of theſe Hives, and ſo are thereby the more prompted to Induſtry: Whether that be ſo or not is difficult to determine.

But it is probable that an Hive made with large Squares of fine French or Dutch Glaſs, which is more tranſparent than the

Engliſh, may not incommode the Bees; eſpecially if each Glaſs window hath its Shutter over it, to cloſe it from the cold as the weather requires it. This I am ſure that it yields the Spectators much pleaſure and delight to ſee theſe nimble Creatures always in Motion and full of buſineſs whilſt the weather is hot, although not that expected and promiſed pleaſure of the view of their *Architecture.*

Now if you deſign really to improve theſe Animals to their greateſt height of advantage, you muſt obſerve their true inclinations, and follow them in that very Method that naturally they themſelves tend unto. As

1. In what place ſoever they deſign to inhabit, they begin their work above and work downwards.

2. In a narrow Hive or place where there number is great, they are much impeded in their work; and in a broad Hive (ſo that their number be proportionable) they begin many Combs according to their number, and do not ſo much hinder the one the other.

3. In a tall Hive or other Cavity, when their Combs are of any conſiderable length they become weary, becauſe they continually

nually aſcend and deſcend in the narrow paſſages between the Combs; which is not only troubleſome, but a great hindrance to thoſe that are below. For I have always obſerved, that the uppermoſt part of the talleſt Hives are never without Bees; but at the coldeſt time of the day or night, then very full, and at the hotteſt times they are continually aſcending and deſcending. To prove which I once cut off, with a ſharp knife, the top of a ſtraw Hive and ſome part of the Combs, thinking by that means that they would as well have paſſed out that way as at the bottom of the Hive; over which I placed a Glaſs Hive made after Mr. *Hartlib*'s way, publiſhed in his Commonwealth of Bees, that in caſe the Bees would have always aſcended, they might have then built in the new Hive over them: but they would not forſake their Combs.

4. The Bees always fix their work to the top of the Hives, and not to the Sticks only that are placed in the Hive, as by ſome is erroneouſly affirmed; thoſe Sticks being placed in the Hives by ſome to ſtrengthen them, that they ſhould not ſink with the weight of the Combs, by others to preſerve the Combs from breaking, in caſe the Hives ſhould be leaned ſide-ways or removed.

5. They uſually Swarm for want of Room.

6. A place cannot eaſily be overſtock'd with Bees, ſo that they have liberty to fly without incommoding the one the other; but if the Country be barren or wanting of Meadow, Water and Oaks, it may be overſtock'd.

Therefore make a Box or Hive of about eight Inches in height in the Inſide, and about twelve Inches broad, four ſquare, cloſe at the top and open at the bottom, with a Square of French or Dutch Glaſs on each ſide of about four or five Inches broad, and five Inches deep, ſo groved in that no Air may paſs through the ſides of it; which may be prevented by fixing it in with Paſte or Cotton-wooll. Let there be Shutters or Covers for each Square of Glaſs, to be added and taken off at pleaſure, by means of ſmall Buttons or Haſps; or you may make it without Glaſs if you pleaſe. Let there be two *Tee-holes* or *Doors*, the one in the middle of the one Square-ſide at the bottom, and the other in the middle of the other Square-ſide next adjoining; that when this Hive ſtands with the one Door towards the South-Eaſt, the other may be towards the South-Weſt, each Door being about

about three Inches long and one third part of an Inch deep.

Then make another Box or Hive of the ſame depth, and about ſix or eight Inches broader, with two Squares of Glaſs on each ſide, two Doors on two of the ſides, that they may tend towards the ſame Coaſts as the other: Let this Box be open at bottom alſo and cloſe at the top, except an hole in the Middle of about three Inches Diameter or Square. You may alſo make a third Box of about two Foot over or more, but of the ſame depth as the former; always encreaſing the Number of your Glaſs-ſquares, and Doors proportionable to the breadth of your ſides.

The Tops of theſe Boxes muſt be made of well-ſeaſon'd dry Wood, *Oak*, *Beech*, *Fir*, or *Sugar-cheſt*, and made in Pannels joined to prevent ſhrinking, ſwelling, warping, ſplitting, *&c.* the ſides with Studds and Pannels, as every Joiner can direct you. The top on the inſide may be either of the Board as it is, which is beſt; or if you doubt that it will ſhrink you may line it with a thin Mat, as I have ſeen it, or Plaſter it with fine Mortar made of Lime and Hair; always remembring to ſinge off the Hair that may probably ſtick without the Mortar.

You may alſo make ſticks to hang in ſeveral places of the Boxes, of about half an Inch ſquare, fixed in the upper part of the Box and extending to the bottom or very near it, the better to preſerve the Combs ſteady, and to help the *Bees* the eaſier to come to their Combs.

The firſt of theſe Boxes you may take a Swarm into it at ſwarming time, and ſet it in its place where it is to ſtand, leaving both the Doors open to the Coaſts before mentioned; which if the Swarm be great will be quickly filled. When you perceive it near full add the ſecond Box under it, placing the firſt on the middle of the undermoſt, leaving the hole in the middle open. This may be done in the cool of the evening or in the night. The next Day will part of the *Bees* take to their new Box, but the greater number continue their former employment until they have quite filled the upper. Then will they fall to work in the lower, and it's probable may fill that alſo the ſame Summer. As you find occaſion, you may add the third, and ſo a fourth or fifth, leaving the ſeveral Doors open in every Box whilſt you find there is occaſion; and as the weather grows colder, and the *Bees* labour

labour leſs, ſo you may leſſen their paſſages by ſmall Wedges, made flat and fit for that purpoſe; ſo you may keep their Glaſs ſhut as you think good. You may if you pleaſe let your uppermoſt be a ſmall Straw-hive, which is as good, though not ſo comely or ſuitable, as that of Joiner's Work.

You may make a Frame of Wood on four Legs, covered with Board or Lead, or what you pleaſe to place theſe Boxes in to preſerve them from the Wet, much whereof they will not endure. Let the drip be carried off from the two foremoſt ſides, leaſt it drive too much on the Hives or *Bees*. This Caſe or *Bee*-Houſe muſt ſtand *Arras*-wiſe with one Corner towards the South, that the Boxes alſo may the better ſtand that way. It muſt have Doors on every ſide; the two back-doors may be whole, and made to open only when you have occaſion to move, order or view your *Bees*. The two fore-doors may be made in ſeveral parts; the upper third part to open upwards, ſupported, dripping forwards, by ſlender Iron-hooks, that the wind ſtir them not; theſe ſerve to keep the *Bees* and Boxes from Rain and Sun. The Under-doors may be made in halves, the one to hang on the Eaſt and Weſt-poſts, and the other

on the South-posts; those on the South-posts to be taken off the Hooks all the Summer, and in the Winter also, except when the *Bees* are to be totally confin'd. The Copper Cut in the Frontispiece hereof will shew you the form of the whole, as well Boxes as *Bee*-house.

From this Form or Model of keeping of *Bees* these Conveniencies and Advantages will certainly ensue.

1. The *Bees* have not far to ascend, their Habitation being but low.

2. They are not hindred for want of Room, nor for want of Entrance; their Doors are wide and on several sides of the Hives or Boxes, that they have great freedom of passage to and fro in the most busie time of their Gathering.

3. The *Bees* have the benefit of the Sun the whole day by this position of the Hive. In hot and dry weather the morning Sun is most necessary to invite them abroad before the Dews are off the Flowers and Trees; and the evening Sun is necessary in all weathers.

4. Their entrance or Doors may easily be straitned as the season of the year requires.

5. The Boxes themselves may in the Winter

Winter be ſecured from cold Winds and Rains, and the warm Sun may be excluded in the Winter-months; which ſhining on the Hives, tempts the Bees to come abroad to their ruine, and uſually wakens them out of their Winter-ſleeps, provoking them to expend their Proviſion, which in the Spring-time, if the Weather prove unſeaſonable, they may want.

6. You may make uſe of your Glaſs-Windows at any time, to view the numerous Colonies of theſe moſt laborious Animals.

7. Theſe broad and flat Boxes will harbour with advantage, as many Bees as poſſibly can cohabit together in any one Colony, with all imaginable conveniency. And as they increaſe in Number, ſo may you increaſe your Boxes, until you find them at a ſtay: And then it is beſt to take them by the uſual way of ſmothering by the Fume of Brimſtone, admitted by ſome hole left at the bottom of the Bee-houſe, and kept ſtopp'd until you have occaſion to uſe it for this purpoſe: For let not any one imagine, that their Honey can be taken from them and the Bees preſerved; unleſs by ſome ſorts of driving mentioned by *Butler* in his *Feminine Monarchy*, which alſo are not commended. The

The Bees will never forſake their Combs that are full of Honey, as I have ſeveral times experimented, as well by cutting off the top of the Hive, and placing another over it, as by inverting a Hive with the bottom upwards, and placing another over it; wherein the Bees built ſome Combs, yet by far the greater part of them kept to their former old Hive. Therefore all the boaſts and affirmations of what hath been done to that purpoſe have been vain, unleſs ſuch pretended Experimenters have met with a new Species of Bees.

CHAP.

CHAP. V.

Of the Gathering of Bees.

THeſe Animals ſpend their time, as long as the Weather will permit, and any thing will yield them matter to work upon, in gathering Honey either groſs or pure, or Wax, as their Occaſions require, and the Seaſon of the year will afford them, according to the Poet,

Now when bright Sol *makes Winters Cold retreat*
Behind the Earth, and opens Heav'n with Heat,
Forthwith they riſe, and thorough Groves and Woods
Reap purple Flow'rs, and taſte the Cryſtal Floods:
By what inſtinct I know not; then they fly
To their own Courts, and their dear Progeny.
Next make their waxen Cells with greateſt Skill,
And thoſe they with Celeſtial Nectar *fill.*
[Tranſlat. of *Virg.*]

In

In the first of the Spring in *February*, if the Weather be fair, they will abroad; and in that Month and the next, as the Spring is earlier and later, they gather much on the *Hazel*, *Dandelyon*, *Dazie*, *Violet*, *Withy*, *Alder*, *Daffodil*, *&c.* But above any other Tree, they most affect the *Phyllirea*; one sort of them beareth in those Months an abundance of greenish Blossoms, which yield great plenty of a Gummy Rosiny Sweat, which the Bees daily transport to their Hives, and yet it as often as the day reneweth. Nothing can be more acceptable to your Bees, than a Hedge of this Tree about your Apiary, it being a very close Fence green all the Winter, and yielding so great a quantity of acceptable Food in the usual time of their greatest Necessity.

Although these Trees are not now very common, yet are they easily propagated from Seeds, Layers or Slips. And I do assure you the effects of them to be as aforesaid, and do not advise it to your loss, as a certain Author did to place the *Elm* about your Apiary; a Tree that hath been always esteemed injurious to Bees, not only by ancient and experienced Bee-masters, but our modern *Botanicks*. Nor as hath been advised to plant the *Palm tree*, which neither

neither Gold nor Silver can purchaſe to flouriſh in this Northern Clime.

The reſidue of the Spring do the Bees plentifully gather on the Bloſſoms of the *Black-thorn*, *Bullace*, *Plum*, *Cherry*, *Pear*, *Apple*, *Goosberry*, *Peach*, and many other Fruits and Flowers, of the Gardens as well as of the Meadows.

Them let ſweet Gardens with freſh Flowers Invite. [Virgil.

Thus from one Tree and Bloſſom to another do theſe induſtrious Inſects gather their Food, being more groſs than the fine Honey they gather in the Summer for their Winter-ſtore; this being but the *Ambroſia*, as *Butler* terms it, ſerving only for preſent maintenance for themſelves and their Brood, for want of which (their old ſtock of fine Honey or *Nectar* being ſpent, and the weather bad that they cannot gather) they often die. Therefore thoſe Plants that afford them moſt of this early Food ought to be propagated about your *Apiary*.

When the Spring is a little paſt, and the Summer, or *May-month* well entred, then the Bees proſecute their building, preparing Cells wherein to ſtore up their Treaſure for

for the ſucceeding Winter; not neglecting their Breeding, which they continue until Nature (their Miſtreſs) prompteth them to decline it, and follow their work of gathering and ſtoring up their *Nectar* whilſt it is to be had. Every Bee hath his ſeveral Office, ſome to gather, others to build, *&c.* as the Poet obſerved.

For ſome provide, and by a Compact made,
Labour abroad; others at home are ſtay'd
To lay Narciſſus *Tears, and yielding Gum,*
As the firſt Ground-work of the Honey-Comb;
Which with ſtiff Wax they finiſh to their praiſe:
Others, the Nations hope, young Colonies raiſe.
Another part the pureſt Honey ſtives,
Until the liquid Nectar *crack the* Hives.
And ſome by Lot, attend the Gates i' inform
Approaching Show'rs, and to foretell a Storm;
To eaſe the laden, or imbattell'd drive,
The Drones, a ſlothful Cattel from the Hive.

[Tranſlat. of *Virg. Georg.* 4.]

After

After the Summer *Solſtice*, the pure *Nectar* reſts on the Leaves of the Oak, and ſome other Trees, but moſt on the Oak; ſo long as theſe Dews fall, the Bees daily lade themſelves home with it; they not omitting their making of Combs, nor as yet their Breeding.

Beſides from Trees, they gather much Honey from Thyme, chiefly to be nouriſhed in and near your *Apiary*, as the Poet adviſed.

Set Thyme *about their* Hives, *and* Pines *remove*
From lofty Hills, for they ſuch Plants do love. Virg. Georg. 4.]

For Thyme yields much and very pure Honey. The Pines are only ſuppoſed to be for ſhelter, being ever green; in the room of which you may place *Phyllirea*, which is to be preferr'd, yielding both ſhelter and food.

After the Honey-dews are over, Bees gather but little; neither do they then build any more Cells, having no need of them, but fill at thoſe times all their Cells to the very top, not only with Honey, but all the Intervals with their Bodies.

So

So that if you ſhould ſeparate or drive the Bees from their Combs before the fall of the Honey-dews, and take the upper part, you would have but little advantage, by reaſon of the young Grubs you would have mixt with your impure Honey. And if you ſhould ſeparate or drive them after, you would not leave wherewith to maintain them over the Winter; and your driving of them, being a lingering Death, would prove greater cruelty to theſe Animals than a ſudden ſuffocation.

Not but that they in the Autumn continually employ themſelves in gathering very pure Honey in ſmall quantity, from the time of the Honey-dews, until the ſeverity of the Winter prohibits their Flight; but not enough to renew their Store for the ſucceeding Winter.

All which conſidered, you will ſoon be of the Poet's Opinion,

Omnibus una quies operum, labor omnibus unus.

All reſt at once, at once they labour all.

[Virg.]

MVSEVM BRITANNICVM

THE

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FINIS.